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A Jubilee Forecast.

(Contributed.)

It is not possible to read the retrospects by Dr. Bradley and Mr. Gooch in the *Veterinary Record* of August 22nd without pondering over the significance of the facts therein disclosed and, allowing thought to turn to the Centenary year 1981, to wonder whether the professional advances of the fifty years to come will compare with those of the period which has now passed, and what directions these will follow.

Fifty years ago the curriculum extended over two sessions: next year it will require attendance for five years. What demand has the public put upon us to necessitate this change?

In 1881 the work of the veterinary surgeon lay mainly in the treatment of sporadic ailments, and especially those of the horse. There were practically no public appointments. It was not until thirty years ago that Public Health work began to attract serious attention, although one must not forget the pioneers—cities which prior to that date had forseen the necessity for meat and milk hygiene, and veterinarians who, despite opposition, showed that, although the ill-effects were upon man, the improvement lay with the animal, and that the subject was therefore a veterinary responsibility. The State service for the control or eradication of major diseases was not one for which the students of 1881 competed. Excepting the veterinary colleges, there were no centres where these could be investigated: and laboratories, as we now understand the term, began with the work of Koch and M'Fadyean.

The Register of 1931 shows 134 Members of the Royal College of Veterinary Surgeons to be officers of the Royal Army Veterinary Corps, 130 to be in the service of Colonial Governments, 109 engaged in County and Muncipal Public Health work in Great Britain, and 99 employed by the Ministry of Agriculture. Eighty-one of our graduates are working with the Veterinary Inspectorate of either Northern or Southern Ireland, and with three of the Municipalities. The Government Services of India, Sudan, and Southern Rhodesia embrace 78, and there are 220 of our Members resident in the Dominions of Canada, Australia, New Zealand, and South Africa, of whom a considerable number are engaged in State, rather than private, service.

It is true that in the towns, dogs and cats now offer an important field for clinical study and practice, but the altered status of the horse and the depressed state of all farming operations make the outlook of many graduates of to-day towards what is termed general practice quite different from that of their predecessors of 1881. Nor must it be forgotten that the time and expense of our curriculum now show little or no difference from those obtaining in the parallel case of a student of medicine, in which profession exists a stronger measure of security to all entrants, an accepted status and a financially sound living to most; and a considerable number of whom can attain to important positions and lucrative practices. Is it not, then, probable that sons and fathers will consider this aspect when deciding upon a career, and that many will be deflected from the study of Veterinary Science unless added compensatory attraction arises?

Fortunately some is even now to be found in the ever widening avenues of the veterinary profession. The above enumeration of our present distribution in what may collectively be called public services, and an appreciation of their comparatively rapid growth, cause one to consider to what extent they and kindred openings are likely to expand and how far it is probable that the present number of members on the Register will be maintained or be increased within the forthcoming fifty years.

The husbandry of stock is, in the main, a business proposition in which sentiment plays but an insignificant part. The force of this, now all too apparent to many private practitioners, will influence the grants of funds for its development in accordance with the results likely to be obtained, although due allowance will doubtless continue to be made for pure research. There is now in many cases a beginning of appreciation for our collective work, and both the State and individual owners are realising the economic benefits which result. This state will be accelerated by the provision of greater opportunity, and when the animal cured of or protected from sickness is, through better feeding, better breeding or better marketing, made to prove its greater worth. This is the acid test of progress which the more enlightened, accepting it as the natural corollary, will proffer their resources to expedite. Have we, therefore, completed our responsibilities with the elucidation and control of major diseases, and with the application of those Public Health measures so urgently requiring a staff which, by the date of the centenary, may well make that of to-day appear insignificant?

Just as we have evolved and, after the first conflict with those of other opinions, have been required to expand in these evolutions, it is probable that we shall increasingly be expected to develop in the directions of genetics, of nutrition, and of the industries associated with the domestic animals. This is the logical outcome of a training in the sciences upon which the whole animal economy rests, the several branches of which are so intimately co-related, and experience in the development of fields untramelled by opposing forces shows how difficult it is to cleave a subject like Stock. Not only does the successful expansion of this industry provide a justification for more intensive study and application of the constituent factors, but malnutrition, mismanagement, etc., show the absence of any constant line between sickness and health.

In the control of major diseases, which we know can be accomplished in the future as has been so successfully done in the past, is it not but natural that the necessary

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workers shall employ themselves upon kindred and interdigitating aspects of stock welfare during those periods when the barrage of action gives place to the relative quiet of intelligence and outpost duty which are inseparable from any programme of eradication? It is only reasonable to think that public employers and private clients will appreciate the added advantages of using in problems of apparent health, those who alone are competent in questions of disease, and in the double capacity are available for any emergency.

Such a programme certainly visualises some ultimate degree of specialisation within the profession, but only little more than does that of to-day, for no recent graduate can be equally competent to engage in research, clinical practice, disease control, and Public Health. It remains, however, based upon our corporate unity and an academic training, which in the future, as has been the case in the past, may require modification so as to meet the outstanding current needs of the period. It strengthens the profession by offering scope to a greater number, and the increased importance of what are now ancillary subjects, although practised every day by some of our members, does not alter its professional and scientific status.

Lastly, it affords to stock matters a concentration of thought and a unity of outlook which in the past, and greatly to the detriment of our animal wealth, have been lacking, and it is unlikely to fail, therefore, to receive in due course the support of owners and of all concerned with the welfare of livestock.

Coccidiosis in Chickens.

" More intensive and mass methods of chicken rearing have brought in their train a serious incidence of disease, particularly coccidiosis, which has this year taken a heavy toll. Poultry farmers recognise the danger of foul ground, but though the chicks are kept off the ground altogether and run on fine-mesh wire floors, coccidiosis has in some instances appeared and run a disastrous course. The suspicion that diet may have some bearing on coccidiosis infection is supported by the experience of this year's chicken rearing at the Southern Poultry Table Experimental Station at Wye, when different food rations were under test. So striking was the difference between the health of the chicks on a ' store ' ration and of those on the usual institute ration that a definite test was planned by controlled experiments in six hover houses. By the end of the seventh week 256 birds out of 272 birds fed upon the ' store ' ration had perished and the remainder were too unthrifty to make further rearing profitable. At the end of the eighth week only 39 birds fed upon the usual institute ration had died from disease. The following week 11 were killed because of being unthrifty and 222 birds were drafted into the fattening pens. That deaths did not commence until the fourth week suggests that the initial infection of the chicks was not a heavy one, and it was only after recontamination of the houses by the chickens' droppings commenced that the infection became sufficiently severe to kill the chicks. Finally, the experiment indicates that the nature of the ration plays a vital part in determining whether chickens will withstand or succumb to coccidiosis infection, an infection to which the great majority of chickens are exposed. We need to know more about the ideal ration for young chicks to give them the fullest resistance to infection, and further controlled experiments are called for to clear up the position.—*The Times.*

Canine Dystokia.*

By

Geo. N. Gould, junr., M.R.C.V.S., Southampton.

I had anticipated that the agenda would be so prolonged as to leave limited time for the reading and discussion of my paper, and for that reason have confined myself to the subject as I have most frequently met with it in practice. I do not suggest that it is in any way a complete survey of dystokia in the bitch.

Dystokia in the bitch is of great importance in practice and appears to be increasing in occurrence year by year; being associated with the rearing of dogs under more or less artificial conditions and breeding for certain fashionable points of the various breeds. The commercial value of the bitch and puppies is sufficient in most cases to ensure adequate veterinary advice being sought in dystokia.

There are two fundamental classes of dystokia: (1) maternal; (2) fœtal. Maternal dystokia is practically limited to inertia of the womb with atresia of the cervix as a secondary condition in some cases. Anatomical defects as a cause are very rare.

Fœtal dystokia is due, in most cases, either to malpresentation of the fœtus or to abnormality in size. Diseased conditions, such as hydrocephalus, are rare causes.

There are two normal presentations: (1) head and two fore feet, (2) tail and hind legs. Uterine inertia may be the primary cause of maternal dystokia or it may arise as a secondary condition after the bitch has been in labour for some time with no result as a consequence of fœtal dystokia: it is that condition in which the pregnant uterus lacks its normal physiological response to its reflexes and as a consequence its expelling powers are greatly reduced or entirely absent. Associated with inertia in some cases is atresia of the cervix—when the uterine walls are inert the cervix does not dilate—but dilation can ensue prior to inertia arising.

Pampering and lack of exercise of bitches in whelp are associated with this condition. It is also frequently observed when the bitch is carrying a very heavy litter and then appears to be due to over distension producing a paretic effect on the uterine musculature. It is also observed in cases in which only one puppy is being carried.

In fœtal dystokia abnormality of size of the fœtus may arise as a result of prolonged gestation due to better development. It is commonest when the litter is small—one or two puppies; but in bigger litters it is usually the first puppy affected.

I have found that the method of leaving it to nature without ensuring that there is no obstruction to successful whelping is neither a successful nor satisfactory way of dealing with whelping cases in practice. Nature appears to be so fickle in most cases. I make it a practice to ask my clients to observe the following recommendations: watch closely for the onset of labour and if a puppy is not produced within three hours there is a possibility of something requiring assistance; the same advice to be followed in between each puppy. In cases of doubt to watch

* Paper presented to the Southern Counties Division, N.V.M.A., at Southampton, on July 2nd.

for the " bladder " to be expelled and if this appears or ruptures and a puppy is not produced within three hours to obtain assistance. If one can ensure being called in before the bitch is exhausted and before the puppy or puppies are dead, results are much more easily achieved and are much more satisfactory.

In uterine inertia pituitrin is a very satisfactory remedy; it is best given in small doses of 5-10 mms., and this dose can be easily repeated every one or two hours if required. It is not unusual for the bitch to be sick after the first injection at the time about which labour commences.

I have had one case of rupture of the womb occurring following the use of pituitrin in a maiden bitch and since that time have used in a number of cases, with complete success, Messrs. Oxo Ltd.'s Ovarian Residue injection. It is given in 1 c.c. doses into the gluteal muscles and has the effect of inducing dilation of the vagina and cervix and increasing the frequency and duration of labour pains by rendering the uterus more sensitive to the natural pituitary gland secretions circulating in the blood. It is recommended in primary inertia and in the early stages of labour in maiden bitches when stimulus is needed.

It is also useful to induce labour in those cases occasionally met with of bitches which habitually go over the normal period or of bitches carrying one or two puppies and showing no tendency to whelp at the 65th day. For this purpose it is given every three to four hours and usually two doses are sufficient to induce the onset of labour, after which whelping proceeds naturally.

Another method of inducing labour or of increasing labour pains is to make a vaginal examination by inserting the finger. It is frequently advisable, especially when the bitch is very heavy in whelp, to assist the delivery of the first puppy; this is usually followed by easy and rapid delivery of the others and appears to result as a consequence of increased tone of the uterine muscle following the relief of the over-distended fatigued muscle.

Fœtal Dystokia.

Fœtal dystokia more frequently calls for surgical measures. Examination by abdominal palpation and per vagina will reveal the size and position of the fœtuses. Any abnormality of presentation should be corrected if possible. This can be effected by manipulation through the abdominal muscles, using the finger in the vagina as a pivot or as a lever or to repel the puppy.

In some cases it may be necessary to use forceps to correct the position of the puppy. In my experience the use of forceps is to be condemned unless one can feel exactly what one has gripped before exerting any traction. The forceps should be guided to the required position by the fingers through the abdominal wall. Before exerting traction examination should be made per vagina to ensure that no portion of the womb has been included. When the puppy has been placed in a normal position it may be left to the bitch to deliver it, aiding this by administration of an ecbolic; or it may be advisable to assist delivery, especially if labour has been in progress for some hours and the pains are becoming weak, if the puppy is very large or if the puppy is dead to ensure as far as possible the well-being of the remaining puppies.

I prefer the use of abdominal compression, using the fingers and thumb to force the puppy towards the pelvis and through it. In small bitches this is remarkably successful, in my experience, and if the puppy is alive safe delivery is more often than not the case. Another method is to exert pressure with the finger or thumb behind the poll or under the jowl, to force the head through the pelvis and then to continue delivery by compression. This method is especially useful in big-headed puppies. When these methods fail the use of forceps is indicated and extreme care is necessary. Puppies can be delivered alive provided too great pressure is not used, but their use frequently increases the bulk to be delivered (depending upon the portion gripped) and crushing is necessary to effect delivery. The lower jaw and limbs do not stand much traction: a grip of the head and of the hips is much more satisfactory. I have found forceps more successful in dealing with posterior presentations as regards delivery of live puppies. It is, of course, essential that all instruments should be adequately sterilised and antiseptic precautions observed. Before using forceps it is as well to examine carefully by abdominal palpation to discover the number and size of the puppies present, and if one is of the opinion that forced delivery will be necessary in each case owing to size, or if the presentation is one which cannot be corrected without undue risk being involved in the use of forceps, it is, in my opinion, far better to advise Cæsarian section than run the risk of extensive use of forceps.

The application of great force with forceps, the fœtus being in an improper position, is usually disastrous. There is one not uncommon position in which embryotomy with the use of forceps in very useful: lateral deviation of the head with one foreleg presented. It is frequently found that the membranes have already ruptured, the amniotic fluid has been evacuated and the womb is quite dry. All efforts at correction of the position by manipulation or with the use of forceps are unavailable. The puppy is usually dead. My method is to grip the leg high up and tear it away at the shoulder; then to grip the ribs beneath the shoulder and by rotary movement and slight traction remove a portion of the chest wall and through that to remove the contents of the thoracic and abdominal cavities. A grip is then taken of the sternum or base of the neck and traction applied. The head sinks into the space formerly occupied by the abdominal organs and delivery ensues quite easily. My experience of Cæsarian section has been extensive and results have been extremely good. The operation can be conducted as a hystotomy in those cases in which it is desired that the bitch shall breed again, or as a hysterectomy when this is not required. The latter is the quicker and is especially advisable in those cases in which forceps have been used or extensive vaginal examination conducted, due to the increased risk as a result of subsequent infection and peritonitis. If hystotomy is to be performed it is advisable to douche thoroughly with 1 in a 1,000 chinosol solution prior to commencement of the operation. The womb incision is closed by Lembert's sutures and each end of the incision can be effectively closed by a purse-string Lembert's suture.

The puppies can be put to a foster mother, but in those cases where there are only one or two the bitch can usually suckle them herself if she is fitted with a tight-fitting coat with holes cut to give access to the two posterior glands.

I hope this short paper will give rise to a free and interesting discussion.

Discussion.

Major E. S. Martin opened the discussion by congratulating Mr. Gould on his paper, which showed evidence of extremely practical knowledge of the subject. He suggested that dystokia varied to a great extent with the type of patient: there was a great difference in the large and small breeds and it would appear that a great variety of instruments were required. He would like to know the time when Mr. Gould thought it was advisable to interfere and would be interested to have further details of the ovarian residue. There were forceps which could be purchased that could be used without inflicting injury on the vagina by pinching it during use. He often found that a lubricant was of considerable value. He would like a fuller explanation of the delivery of puppies by manipulation.

Mr. J. H. Ripley said that, in regard to the rupture of the womb occurring after the use of pituitrin in a maiden bitch, he did not advise indiscriminate use. In his experience the bitch appeared to become worn out much more quickly as a result of the injection. He would like further details of the use of ovarian residue and would be interested to know if it could be employed to induce abortion.

Mr. W. M. Caudwell observed that, in his experience, big-headed puppies were the chief cause of the trouble and that in those cases inertia soon followed. He often found that the nose dropped and that it was very difficult to get it up. Inertia appeared to occur sooner in fat animals. He suggested that if the bitch was turned over on to her back in the case of inertia, the womb being flaccid, the puppy would drop back into the pelvis—which might assist in delivery. He did not use pituitrin to any extent but had used quinine and ergot and latterly had had very successful results from the use of nux vomica, employing the tincture in doses of 10 minims repeated in three hours. He would like to know the best means of overcoming a breech presentation. He also had used lubricants and found them of value.

Mr. C. Pack said that whelping appeared to him to be mainly a matter of common sense and mechanical knowledge; he had found lubricants very useful. He suggested that the best means of dealing with the breech presentation in which only the tail was presented was to grip the tail with the forceps and draw the puppy away. In regard to the cases of lateral deviation, he was very interested in Mr. Gould's method but suggested that the use of a snare to get the head straight would overcome the difficulty. He had often found that he got better results by drawing the bitch away from the puppy rather than exerting traction on the puppy itself.

Mr. White asked for further details of Cæsarian section and enquired how one disposed of the amniotic fluid in the fœtuses to prevent spilling into the abdominal cavity.

The Reply.

Mr. G. N. Gould, in reply, said that, as regards Major Martin's questions, he agreed that whelping varied with the size of the patient and with the bodily condition and treatment prior to whelping. Concerning instruments, he found that forceps of varying size were necessary, but in his practice these were infrequently used except when delivery could not be induced by compression or manipulation. As regards injury to the vagina from the use of forceps, he was not referring to that in his condemnation of the use of forceps except when it was quite clear that one was certain of what they were actually gripping; he was referring to the danger of including a portion of the uterus in the part gripped, with the danger of rupture on exertion of traction. He had explained in his paper that he considered it advisable to examine the bitch within three hours of the onset of labour if some result did not appear to be imminent and then to give any attention required. If the condition appeared to be normal he did not advise interference provided the labour pains were normal, and the bitch was obviously able to deliver the puppy.

As to the manipulation, he had found this especially useful in the smaller types of patient and the idea was to compress the womb behind the puppy to force it towards the pelvis and through the pelvis, following which delivery could be induced. If he found that the head would not pass through he then used direct pressure on the head itself through the abdominal muscles, using the finger against the poll or under the jowl. In cases of big-headed puppies there was no other means of assisting delivery than by crushing the head, which involved the death of the puppy.

As regards the ovarian residue, he had used this rather extensively on maiden bitches and found it of great value and quite as satisfactory as pituitrin. He had also used it in cases of delayed parturition (as explained in his paper) with complete success. He considered it a very useful aid in whelping cases as an alternative to the use of pituitrin or other ecbolics. In reply to Mr. Ripley, Mr. Gould said he used and had used pituitrin extensively and that he had not noticed that the bitch became exhausted more rapidly as a result. He had found ovarian residue quite satisfactory in those cases in which he had used it: these were mainly confined to maiden bitches. It was essential that it should be used before a bitch became absolutely exhausted. As he explained, it was more useful in primary inertia. In reply to Mr. Caudwell, Mr. Gould agreed that the big-headed puppy was one of the chief causes of trouble and that it was in those cases that danger arose from the use of a powerful ecbolic, such as pituitrin, due to the increased force of labour being applied to an immovable obstruction. He thought it far preferable to assist delivery in these cases either by compression and manipulation or, if this failed, by the use of forceps. In addition to inducing a more active labour ovarian residue induced dilatation of the cervix. He agreed that inertia was more prominent in fat animals. Concerning those cases in which the nose dropped, one would get that up by use of the finger per vagina with compression to force it into the pelvis. In regard to Mr. Caudwell's suggestion of turning the animal over to allow the puppy to drop back into the pelvis, he had had no experience of it.

He had not used quinine or nux vomica as an ecbolic. Ergot was often inactive and was associated with a bigger danger of rupture.

In reference to breech presentation, the tail only being presented, his method of dealing with this would be to correct the presentation by raising both hind legs and then exerting traction on them or inducing delivery by compression. It was an elementary principle in all cases of dystokia that all abnormalities of presentation should be corrected prior to delivery to ensure successful results. He had already replied to Mr. Ripley's question in his answer to other members.

In reply to Mr. Pack, Mr. Gould agreed that whelping was usually a matter of common sense. He used lubricants very infrequently, but they were probably of advantage in some cases. As regards the use of a snare in the lateral deviations he had mentioned, he had found this method of no value, as it was impossible to snare the head.

Replying to Mr. White, Mr. Gould said that an incision was made through the linea alba in Cæsarian section. The uterus containing the puppy was expressed through the opening made, and an incision made through the body of the womb. The puppies were manipulated through that incision, contained in their fœtal membranes, and handed to an assistant for removal from the membranes and subsequent care. All fluids were thoroughly cleansed by the use of chinosol 1 in 500 and the incision sutured with Lembert's sutures. The womb was then returned to the abdomen and the muscles and skin sutured, an abdominal bandage being applied.

Recorded herds in Scotland are estimated to be giving 200 gallons more per cow per annum than the unrecorded herds. This is a claim made by the Scottish Milk Records Association in a review of its work in 1930. The number of cows tested during the year was 30,720, in 731 herds, compared with 30,898 in 1929.

In the list of 60 heaviest yielding cows are two that produced over 2,000 gallons each. Both are British Friesians. The leading record of a heifer that produced another calf within 13 months of the beginning of her lactation was 1,347 gallons, and that of a heifer that calved within 15 months was 1,693 gallons, both being Friesians.

Discussions on Papers Presented to Congress.

No. 2.—Milk Hygiene.*

By

J. McAllan, M.A., B.Sc., M.R.C.V.S., and G. Howie, F.R.C.V.S.

The Section of Veterinary State Medicine of the N.V.M.A. Congress at Norwich, had this joint paper under discussion in St. Andrew's Hall on the morning of Tuesday, August 25th, 1931.

The session was presided over by **Mr. G. P. Male** (Reading) who, in introducing the subject, said: We have a very interesting paper to discuss this morning, and I am sure you have all read it, and will take part in the discussion. As you have read the paper I take it that you do not wish it to be read again. Colonel Brittlebank, who was to have opened the discussion, has written to say that he is unable to be present, but he has sent his paper and I will now ask Captain Gunning, our recording Secretary, to read it to you.

Lieut.-Colonel J. W. Brittlebank (Manchester): In the first place, I must express my extreme gratification for the honour you have done me in inviting me to open the discussion on the very able paper presented to you by the authors, Mr. McAllan and Mr. George Howie, and I only regret that the extreme pressure of business makes it impossible for me to be present, and to express my appreciation in person.

I am glad, at the very beginning, to be able to congratulate the authors on their decision to break new ground. Many papers on this subject, which is now very nearly threadbare, have become almost stereotyped, in that they all traverse the same road and show but little originality. Short as is the paper presented, an enormous amount of material has been compressed into it, and it does indicate what one has long been looking for—a capacity for regarding the subject treated as being one of very wide and general importance, and not necessarily confining itself in all its details to the veterinary outlook.

I think we can say, without any fear of contradiction, that the veterinary contribution during the past thirty odd years has been no mean one, but the further contribution to be made before the difficulties which are evident have been solved, is a tremendous one, and it is in this direction that I think we should direct our serious attention whenever we review the production and distribution of milk; and I would remind my hearers at this point, that I think we must take care to remember that there is more than one side to this question, and that the consumer is of equal importance to us as the producer.

I am glad to see the reference to "undulant" fever, and so far as I am capable, I have kept myself informed of the work which has been done on this section. As an interested onlooker, I am impressed by the fact that if bovine abortion is a serious menace to the consumer, there has, so far, been little recognised evidence of it, for there can surely be no more widespread condition in our herds.

I am interested in the reference to the pig, in its relationship to this disease, and am bound to say I know nothing whatever about it. As some no doubt know, I have had very extensive experience in the handling of pigs, and the supervision of pig-breeding, but I have never to my knowledge seen contagious abortion in the pig, and such a small amount of bacteriological work as we have been able to do in this direction has yielded nothing. The writers have, however, indicated sufficient to whet our appetites for more.

When we come to the group of organisms concerned with food-poisoning, we open one of the most difficult aspects of the whole question—difficult in the sense that the investigations are so often fruitless and difficult to conduct, particularly in large centres of population, often so far from the sources of milk production.

The reported outbreak in 1925, affecting 497 persons, is of great interest, and it brings to mind several outbreaks which I, when a public health officer, had to investigate in the years gone by, and particularly before pasteurisation as we know it to-day, became so general, and has ensured the almost complete disappearance of milk bovine epidemics. It is no use, at this moment, to attempt to record a series of these cases, because most of them, however satisfied one was that food-poisoning was prevalent, ended in an unsatisfactory way, in that it was impossible to trace the origin. That they were cases of food-poisoning was, however, open to but little doubt. The only satisfaction there was, was that immediately the milk supply was changed these outbreaks ceased. The result was that, in every such case that came within my ken, my first step, when satisfied, was invariably to take measures to deal with the milk supply, by either altering it or seeing that it was sterilised, until the inquiry was cleared up.

I am, however, tempted to refer to one case which occurred some 29 years ago, where a very large number of consumers were affected, and which case bears a resemblance to one of the cases quoted in the paper, where finally the cow was found to have a small deep-seated abscess in one quarter of her udder. Immediately this cow was taken out of the supply, the whole outbreak ceased. The cow was slaughtered, and a careful *post-mortem* made, and so far as it was possible to ascertain, there seemed to be no connection between the abscess and the actively secreting portion of the gland, but that this cow played an important part in that outbreak could not be doubted, in view of the abrupt termination of any extension of the outbreak immediately she was withdrawn from the supply. Cases of this sort are numerous, but recorded bacteriological work in connection with them is very unsatisfactory, and one only hopes that the writers of the paper will be able to throw much light on a very important question.

Finally, we come to the very important question of tuberculosis. I do not intend to detain you very long, because I think many of you know my views, so often expressed, on this question. I may be permitted, how-

* It should be pointed out that in some, though not in most, copies of this paper, an important omission was made in printing. The first sentence of paragraph 2, column 1, page 3, should read: "Recent statistics conclusively prove this, since the bovine type of the bacillus, as an actual cause of disease, is found in the cervical glands in 85 per cent. of autopsies on children under five years of age *affected with tuberculosis*." (Words in italics were those omitted.)

ever, to reiterate that even if tuberculosis of the bovine were of no importance to the human consumer of milk, it is of predominant importance to the dairy-farmer as the source and basis of a great part of the financial losses which he has to suffer in carrying on his business. I have said, in the years gone by, that if the agricultural side of this question could be solved, probably 90 per cent. of the losses suffered by the stock-producer and dairy-farmer would be eliminated. Whether this estimate be correct or not is of no great importance at the moment, but in every aspect of dairy-farming one realises the ever-growing importance of every endeavour being put forth to reduce the losses which are now bearing so heavily upon all concerned.

The writers of the paper have quoted but few statistics, for which I congratulate them, and I also congratulate them on having selected areas where the percentage of tuberculous milk was comparatively low. There are other areas in which the average percentage of milk found to be tuberculous is very much higher, and probably no less than double the amount of the figures quoted. I would, however, suggest that percentages taken in the way that they are frequently arrived at, by merely calculating the number of positive samples found in the gross sampling carried out, is not right, and that the only correct way to obtain a true perspective is to record one's results in percentage of farms, instead of percentage of samples. I say this because I have always regarded it as safe to presume that the finding of a tuberculous sample of milk was a preliminary indication of the existence of a high degree of infection in a herd. Experienced public health men will realise the importance of this.

For many years, too, I have thought that the method of controlling milk supplies by bacteriological examinations of samples, side-tracked the real issue. The method is well-known to you all. I am persuaded that, only too frequently, much too great importance is attached to the finding of a negative sample, which is no guarantee of any continued freedom of the milk supplied from any particular farm for any reasonable period.

I do not propose to enter into discussions of the pathological aspects of the question, except to say that I heartily agree with the clause enunciated by the writers in that the principal cause of tuberculous milk is the cow with the tuberculous udder. Any tuberculosis which is found in milk, which is from other sources, I do not regard as of equal importance. I also agree that the udder may pour out copious infection for long periods before any clinical evidence is available. I will go further and say that I have known cases in which tuberculous milk has been consistently given by individual cows over long periods, which had at no time diagnosable lesions, such as could be found by the clinician.

There can be no doubt that the clinical inspection of dairy-herds is work which calls for the highest skill from all concerned, and if anybody imagines that it can be conducted by a mere casual examination of the animals in the field, or by merely looking at them in the cow-house, I would say that he has but little knowledge of his subject. Clinical examination calls for the careful examination of each individual animal in the herd, and all the accessory resources available to the clinician will be necessary if the work is to be of material value, but if it is carried out seriously, persistently, with the utmost care, and with the keeping of careful records, I am satisfied that a very large measure of protection can be given to the consumer of raw milk.

I do not wish, at this point, to venture upon the highly controversial aspects of this question, in so far as they concern the very important national problems of the elimination of tuberculosis from our herds, but I would say I deprecate seriously the general tendency evident to-day, of trying to reach goals by short cuts by a definite neglect of the elementary principles which we all know to underlie our problems. I regard it as essential that there shall be created throughout this country a complete veterinary service, and that this service should act under definite control, and with a certain objective in view. These principles require the putting into practice of the well-known principles of preventive medicine, to effect a very large amount of infection in our herds, and so bring nearer the day when the general elimination of tuberculosis comes within the field of practical politics.

I believe it to be essential that in any such general veterinary service we cannot afford to neglect the general practitioner, as I am convinced that his skill as a clinician will be of inestimable value in any field, but I believe that all such work, to be of value, must be properly co-ordinated, properly controlled, and that only by a willing putting forth of the very best endeavour on the part of all, can really great objectives be reached. I say here and now again, that I am no advocate of handing over the whole of this work to a whole-time veterinary service. A whole-time nucleus is required, but the assistance of the practitioner is essential to success.

In conclusion, no doubt many may agree that my remarks have been somewhat discursive, but for this you must blame the writers of the paper, who have unfortunately dotted their i's and crossed their t's to such an extent that it leaves but little for one to say, or at any rate in my case, little with which I can disagree, even if I wanted to, and I can only end finally with a reiteration of my congratulations to the authors. (Applause.)

The **Chairman**: I am sure you are all very grateful to Captain Gunning for reading Colonel Brittlebank's important contribution, and emphasising it so well, as he has not had the opportunity of reading it before. We have a fair amount of time to-day, so I think I can allow you ten minutes each, but if there are a great number of speakers we may have to bring a five-minute limit into operation.

Mr. Hugh Begg (Hamilton, Lanarkshire): Much credit it due to the authors of this paper. In trying to evade the often-trodden phases of "Milk Hygiene" they have produced something intermediate, if I may say so, between the work of the field and that of the laboratory.

The general purpose of the paper is largely defined in the second paragraph in which the repetition of the word "much" is rather significant.

With regard to the question of undulant fever, is it the view of the authors that the disease does actually often occur in this country and are they of opinion that lack of energy in looking for it is responsible for the paucity of cases recognised by medical practitioners?

Abortion prevails to a considerable extent in Lanarkshire and much of the milk must contain the *Br. abortus*. It

is therefore difficult to reconcile an almost entire absence of cases (I have only heard of two or three in the County) with the believed capacity of infected milk to produce undulant fever. Incidentally, may I say, that having heard that a veterinary friend, living at a distance, had been suffering for a period from an ill-defined febrile complaint, I wrote to him suggesting undulant fever and asking him, if he had any suspicion of having been so infected, to send through a blood sample for examination. He did so, but the result was quite negative.

Perhaps there are several factors operating in Lanarkshire and elsewhere to limit the infectivity of the milk of aborting cows. A good deal of our ordinary milk supplies is submitted to pasteurisation—so called—but those who possess plant for pasteurising milk are altogether too keen to maintain the cream line and seldom—if ever—allow the temperature to rise above 142° F. Again, our adults are not given to drinking raw milk in quantity and what they do use is very much confined to what they put into their tea two or three times a day. There are, of course, many outstanding exceptions, especially on farms, and yet we hear of no evil results. Perhaps the essayists will tell us plainly whether they believe that many cases of undulant fever do occur in this country and that they escape diagnosis.

They refer to the fact that undulant fever is rare in children and it occurs to me that the explanation is perhaps to be found in the parallel of which we do have knowledge, that bovines that are too young to have their sexual tissues (the predilection seats of the *Br. abortus*) well developed and throw off the evidence of any infection they may contract pre-natally or post-natally and up to the period of adolescence.

The paper very properly stresses the propriety of veterinary inspectors increasingly taking note of indisposition amongst the people that comes to their knowledge on milk-producing farms and reporting all such cases to the Medical Officer of Health.

As to Salmonella infections, the classical case of 1925 in Aberdeen was rather disconcerting and we can only commiserate with Aberdeen in their unfortunate and exceptional experience.

I understand that the essential organisms of "rat viruses" belong to the Salmonella group and it is surprising that the handling of the wet bait by hundreds of people daily produces no ill effect in young or old.

In considering the possibility of deriving diphtheria from the cow, I regard this as so remote that I hope no scribbler is present who will seize on this paragraph of the authors and print an arresting headline of warning in the public press. It is a subject peculiarly suited for private discussion *only*, and I feel sure that in the case cited the virulent diphtheria bacilli that are said to have been found in the discharge from the sore teats constituted a superimposed infection brought to the teats by an infected milker. Although there are at least other three recorded cases of diphtheria infection being traced to milk, this is the first time I have heard of the bacilli being recovered from teat sores. Of course, it is rather common to have diphtheroid bacilli reported in the abnormal product of certain cases of induration of the udder, but that is a different matter.

We must agree with the essayists that tuberculosis is the most serious infection of milk. Colonel Brittlebank has referred to the great advance that has been made in its detection, and while agreeing, I have to admit how very difficult it sometimes proves to be. We cannot afford to neglect the sampling of any quarter that shows the slightest induration and many times, in endeavouring to find the culprit in a herd whose supplies have been indicted by a receiving authority, one can find no clinical evidence whatever of udder tuberculosis, and on occasion the entire result of our endeavour is negative.

In tabulating three ways of access of tubercle bacilli to the milk supply, the third venue mentioned by the authors is stated in general terms which are perhaps intended to include the possibility of infection from urine. This I regard as an ever-present menace in an infected herd where methods of milk production are not above suspicion. Those of us who are daily making *post-mortem* examinations of cows killed under the Tuberculosis Order know the gross character of the lesions that are often found in the kidneys. [Mr Begg proceeded to describe an experiment he had recently made with a sheet of paper placed over a receiving vessel placed on the walk four yards away from a cow while she was urinating, when the state of the sheet of paper thereafter greatly surprised the owner, who had objected to Mr. Begg removing the receiving pail from the byre walk when he entered the byre.]

Continuing, Mr. Begg said: I am rather surprised to see the authors using the words "nodular" and "nodules" as descriptive of the perfect clinical picture of tuberculous mastitis. That is not true, and they must know that almost every case that can be characterised by these words is streptococcal or perhaps, on occasion, staphylococcal in origin.

I could cite many cases wherein the tracing down of tuberculous infection in milk proved to be serious detective work.

I entirely agree with the authors that frequent veterinary inspection of dairy cows is the chief bulwark of the consumer against tuberculous infection in milk and I am glad to see this sentence in the paper: "Although our paper has dealt chiefly with milk-borne diseases, yet we would emphasise that we are of opinion that the milk supply of this country has probably, on the whole, never been so safe as it is to-day." It is eminently true that the veterinary surgeon is proving more than ever that as a public health official he cannot be dispensed with, and the public ought to know that specialists in increasing numbers are rising up who will efficiently carry on the good work.

I thank you, gentlemen, for listening to me and, in return, would again thank the authors of this interesting paper. (Applause.)

Professor G. H. Wooldridge (London) said that he agreed with Colonel Brittlebank that the services of the veterinary surgeon in connection with milk hygiene should be appreciated; and he thought it would be a good thing if this paper, or copies of it, were sent to the Ministry of Health, and one would like it extended to Medical Officers, at any rate of county areas, in order that they could see more clearly the type of work which could only be carried through by the Veterinary Officer. One could not read this paper through without being struck with the fact that only a

very competent veterinarian could have dealt with the problems raised.

There were many points with which he did not entirely agree, although agreeing in essence. He was struck with the infection caused by *Brucella melitensis* and its danger to man. Whilst recognising that illnesses of some obscure character could be produced by the consumption of milk, he thought they ought to be rather careful that a wrong impression should not be got by the layman. They must accept the fact, if there were a risk, but it was a comparatively small one. When they realised how the disease of *Brucella abortus* infection had been rampant among our herds and the enormous amount of milk that had been used, and the great scarcity of undulant fever that had been noted, that was not the time to raise a scare. It was unnecessary to say that these scares had been caused through a lack of knowledge. They could not tell him convincingly that all the medical fraternity throughout this country, who had had the welfare of children and adults in their care so long, had only just recently discovered this obscure disease and its relation to milk, and he would like to sound a note of warning against any possible scare being made through a wrong impression being given to the layman.

With regard to the pig and *B. abortus*, he would like to suggest that in this country when pigs became affected with the bovine strain, it was almost entirely due to the milk feeding of the sow.

As to the best way of taking samples of milk for inspection for tuberculous infection, the method he had adopted was to part strip the udder, then massage and strip again. He would like to know what was considered the best method.

Reference was made to other infections that could be conveyed by milk. He had looked carefully to try and find where those infections were prior to leaving the udder, and was pleased to find that they had occurred after leaving the udder. That was a very important point with regard to clean milk, and should strengthen the hands of the authorities in their war against dirty milk. It was very important that dirty milk should not be passed on to the public, and the suggestions with regard to grading milk did not meet the point, as they really implied that no man should sell any milk at all other than boiled milk. If farmers realised this, then they would come into line and produce the better class of milk. That paper emphasised, in the strongest possible way, the method by which we could ensure that the public obtained wholesome milk.

Mr. D. S. Barbour (Ayr) congratulated the essayists on their paper. With regard to undulant fever, he rather agreed with Professor Wooldridge that it was very dangerous to allow it to appear that milk was the common cause of infection. In Ayrshire there were 2,000 dairy farms, and while the whole of the milk consumed in the county was produced in the county and very few herds were free from contagious abortion, yet in spite of a very strict watch being kept only one case of undulant fever had been found. This was a farmer whose condition had been variously diagnosed as typhoid fever, rheumatic fever, and tuberculosis. It was found that about six weeks prior to his illness he had assisted in delivering a cow, and he admitted that he had at that time many open wounds on his arms. A sample of blood taken from the man and the cow both proved positive to *B. abortus*. This would appear to be infection from actual injection.

As far as tuberculosis of the udder was concerned, whilst he had seen many tuberculous udders, he was as far away as ever he had been in knowing what was the clinical appearance of a typical tuberculous udder.

Captain Donald Campbell (Rutherglen) also desired to congratulate the essayists on the very able paper they had given on that subject. They had set themselves some very difficult questions to answer, and they had also endeavoured to find answers to them.

Regarding undulant fever, one or two things in regard to that occurred to him: one, for instance, was the astonishing prevalence of abortion in this country, and another the rarity of undulant fever in man. The question of this fever was in the air at the moment, and we could not ignore it. We had to set to and try to find out the position. Their only course was courageously to face all the problems concerning it, but to do it without any fuss; without becoming gibbering idiots as to milk scares, etc.

The only other matter that he wanted to speak about was in regard chiefly to tuberculosis and the question of pasteurisation. The authors of the paper had come somewhat reluctantly to the conclusion that all non-graded milks should be pasteurised. He did not like the idea of pasteurising milk as the universal remedy for milk troubles. He did not think we ought to countenance that, but he had to agree with the authors that at present non-graded milks should be pasteurised. Arguments for pasteurisation could easily be extended by whole-hoggers to include all milks, graded as well as non-graded. A great drawback to pasteurisation was that it encouraged slovenly handling of milk. On the other hand, knowing that a certain proportion of raw milk contained virulent tubercle bacilli, were they going to take it on themselves to give that to children, and so wilfully expose them to the risk of infection?

Last year there was an experiment made in Lanarkshire in the feeding of school children by milk. They were divided into three classes; one-third received no milk whatever; one-third graded milk, and the rest pasteurised milk. A report was issued after three months, with the following results:—

Captain Campbell here read the following extract from *The Scottish Farmer* of January 17th, 1931:—

"Mr. H. F. Smith, of Messrs. M'Gill and Smith, Ayr, referred to the Lanarkshire experiment in the feeding of milk to school children. It had been reported in the press that 'The general deduction seems justifiable that there is no evidence of greater effect on growth in weight in raw, compared with pasteurised milk or *vice versa*.' He had looked up the tables, and some of the figures were so anomalous as to suggest a vital error. He took the case of 14 classes of boys and girls. The total weight in ounces for the 14 was 137·59 for the controls, 181·18 for the pasteurised group, and 200·69 for the raw milk group. The individual increase was thus 9·82, 12·94 and 14·33, or an increase of 43·59 for the pasteurised group and 63·10 for the raw milk group, or in other words, 31 per cent. for the pasteurised group and 46 per cent. for the raw milk group. It appeared to him that the addition of pasteurised milk had added 3 ozs. and the raw milk 4½ ozs., and he was therefore very much puzzled how the reporters got no evidence of growth in weight between raw and pasteurised milk, and he hoped for some more information on the point.

"The late Mr. Arch. MacNeilage, Hon. Secretary of the Society, agreed with Mr. Smith. The figures in the table did not support the conclusions that there was no evidence of greater effect in raw milk compared with pasteurised. If they examined the tables for themselves they would find that."

He had not checked the figures himself, as there was no doubt they were correct, and they had been confirmed by the late Editor.

Captain T. J. Bosworth (Cambridge) observed that the paper which they had before them was one which he had read with more than ordinary interest. He must admit that he did not ordinarily approach a paper on milk hygiene with any great expectation of finding the subject treated in a manner in which it had not been dealt with many times before, but on that occasion the authors were to be congratulated on having found a new line of approach. There was also another matter on which he thought they might be congratulated, namely, that they appeared to carry out their duties, if he might say so, in what seemed to be a very favourable atmosphere. Reading between the lines, one gathered the impression that the Public Health Department to which they belonged was a very efficient organisation and its efficiency must be largely influenced by the fact that each member of it was called upon to carry out that part with which his qualifications rendered him most able to deal in any investigation that might be undertaken. It was from collaboration of that kind that the best results might be expected in investigating cases where man might have been exposed to the risk of contracting infection of animal origin.

It was on the subject of food poisoning caused by the presence of Salmonella organisms in milk that he wished to say a few words, although he had no actual experience of such an occurrence. The authors' observations were very opportune because, although no one wished to say anything which might tend to make the general public more frightened than it was already of milk as an article of food, their interests could only be protected if they realised the dangers that existed and took adequate measures to deal with them. The risk of an occurrence of that kind must have been evident since the first case of paratyphoid infection of cattle was placed on record many years ago, and it was difficult to understand why the cow should have been regarded in some quarters as beyond suspicion as a possible source of infection of milk. That was perhaps all the more surprising when one bore in mind the emphasis laid in meat inspection on the danger, as a source of food poisoning, of the flesh of animals slaughtered in emergency when suffering from septicæmia or enteritis. There would be general agreement with the view expressed in the paper that there was need for further investigation of the causes of diarrhœa in cattle and it might well be that paratyphoid organisms were more often responsible than had been supposed.

In the majority of recorded cases the affected animals had been calves and young stock, but the disease had been observed in a milder form in adult cattle and in them, according to Jensen, it manifested itself as transient diarrhœa or in diffuse or hæmorrhagic enteritis. It was thus more liable to be overlooked than in younger animals, in which it produced marked symptoms with, as a rule, a rapidly fatal termination. So far as they were able to judge, Salmonella infection among cattle was not uncommon on the Continent of Europe, where its existence had been known for many years. It was also recognised in America and, within recent years, had been described in South and East Africa. So far as this country was concerned, they had it on the authority of Savage that outbreaks of food poisoning associated with the flesh of an animal known to be diseased were in a decided minority, but that paper would serve to remind them that Salmonella infection did occasionally occur amongst their cattle. Within the last two years they had themselves observed in Cambridge three fairly extensive outbreaks of this type of infection in quite young calves and it was not impossible that those animals became infected from cows which were either suffering from a mild form of the disease or were acting as carriers.

Arising out of the paper there was just one other point. When the authors stated that most cases of food poisoning due to milk were probably the result of contamination from human sources, one would like to know which particular member or members of the Salmonella group they had in mind, as one had always regarded the human being as being a very remote source of origin of the ordinary food poisoning varieties.

In connection with undulant fever in man, he was not altogether satisfied with a diagnosis based solely on the result of an agglutination test and thought that this should be confirmed in all cases by making a blood culture. Otherwise there was a danger of drawing erroneous conclusions as to the incidence of the type of infection. As an example he might mention that although he had never suffered from this complaint he had on one occasion found that his serum reacted quite strongly to the agglutination test.

Mr. T. Eaton Jones (Liverpool) said he spoke both as a farmer and as a veterinary surgeon. His slogan was "drink more milk." He agreed with Mr. Campbell with regard to pasteurised milk.

He noticed that the essayists were of opinion that the "production of the highest grades of milk should be encouraged to the fullest for two reasons:—

(1) Because such milks are as reasonably safe as we can hope to get them; and

(2) Production of the highest grades of milk means the establishment of the best types of herds with an all-round benefit to the stock of the country."

As things were in this country, the ideal of a universal supply of the highest grades of milk was unattainable; so what was their alternative? They had dealt with diseases, some of proved vital significance, others of growing importance, and some of concern because of their sporadic nature, and their suggestion was that to safeguard the consumer against possible disease from milk, efficient pasteurisation of all but graded milks must be advocated.

Then, in the final paragraph, they said, "It follows that the full exercise of these powers should lead automatically to a general, though gradual improvement in our stock and in effect should materially help those laudable and altruistic schemes which our profession has recently put forward for the eradication of one of the great scourges of our stock, *viz.*, tuberculosis." Any means that would further these schemes in any degree naturally had the wholehearted support of the veterinary profession.

They were extolling raw milk on the one hand and

damning it on the other. With regard to improving milk throughout the country, pasteurisation would put the clock back. He knew of one very large city where they had decided to go for pasteurised milk. Farmers had been sending their milk in for years under agreeable annual contracts. When pasteurisation came along they got a very brief notice that the contracts would be reconsidered. They found out eventually that the authorities did not care then whether the milk was clean and of good quality or where produced, but low tenders were essential. Many dairy farmers were left high and dry with their supplies and it caused a great deal of distress in that particular part of the country. Personally, he was not going to drink pasteurised milk at all. He considered that every veterinary surgeon should recommend the drinking of clean, raw milk. If the farmer and the veterinarian would only give the public some lead and contribute a very small sum per gallon, say one-tenth of a penny, to a general fund and tell the public by advertisement how beneficial milk was, it would do an enormous amount of good and the public would drink it with confidence. The way to establish this clean, raw milk was by routine veterinary examination of the cattle. If they did not persuade the public to drink raw milk, and pasteurised milk came into general use, the next step might be condensed or dried milk which could be supplied from overseas to the great detriment of farmers and veterinarians generally of this country.

He thought it was only necessary to appoint a whole-time man for a county, to supervise, because those veterinarians who were practising in the neighbourhood were doing their part. The necessity for a whole-time man was to hold the balance.

The veterinary surgeon might say, how am I going to get on with my client? He suggested that the whole-time man was there to take the brunt of the bother if necessary.

Someone had said that there was *often* no clinical evidence of tuberculosis of the udder. He disagreed entirely with that. To the trained and experienced man the difficulty was not great.

Finally, he would say that in 133 consecutive samples of milk taken by the veterinary staff of the City of Liverpool 132 were correctly diagnosed as affected with tuberculosis in periods varying from a few minutes to an hour with an average of ten minutes per sample. The animals from which the samples were taken were also slaughtered within a few hours or a day and the *post mortem* had confirmed the microscope.

On or about April 24th last, an article appeared in the *Medical Officer* sent in by Dr. Savage, the Medical Officer of Health for Somerset, in which he expressed the opinion that veterinary inspection of cattle for combatting tuberculosis in milk was of little or no use. Since then a Report, No. 63, on Tuberculosis in Man, with Special Reference to Infection by Milk, had been issued by the Ministry of Health. In the summary of it on page 24 the following paragraph appeared :—

" The next method of control considered is one which has only been tried to a small extent in England and Wales, but has given such encouraging results in Scotland that its area of operation is being rapidly extended. This method is the routine clinical examination of cattle, which, to be fully effective, should involve the thorough and systematic examination by competent veterinary surgeons of all the milk herds at stated intervals, say twice a year, and the exclusion of those found diseased. There is reason to believe that such a procedure, when employed in combination with other methods of prevention, is productive of beneficial results."

He had also sent an article to the *Medical Officer* stating his own opinion, and he hoped that in due course both would appear in the *Veterinary Record.*

Major F. L. Gooch (Stamford) remarked that several points had been raised as to the sources of milk infection through excreta, urine, etc., and nothing had been said about the bull. If they went on to the farms from where they got their milk, they would find the bull very near to the cows. He agreed that pasteurisation was not the right way to get good milk. Let them pick out an old cow and see the filth she carried with her. Clean yards and washing of the cows would help a lot in our efforts to get clean milk.

Captain R. Simpson (Carlisle) said that he had only a few remarks to make. He could only congratulate the writers of the paper up to a certain point, because he disagreed particularly with one of their recommendations with which they ended their paper, namely, that all ungraded milks should be pasteurised. That to him appeared to be a council of despair, and a confession of failure on the part of the veterinary profession to secure clean, tubercle-free milk.

On the one hand the writers advocated the clinical examination of dairy herds combined with bulk sampling of milk, and then proceeded immediately to advocate pasteurisation. If proper clinical inspection of cattle was efficiently carried out and backed up by a reasonable system of bulk sampling, there should be no need for pasteurisation.

Pasteurisation, in his opinion, was a retrograde step, and offered no encouragement to the production of clean milk. He hoped it would not go out from that meeting that the veterinary profession was unable to deal with this question of the provision of a pure milk supply without pasteurisation being adopted.

With regard to the detection of cows giving tuberculous milk, in a very considerable percentage of cases if proper and careful procedure was adopted, the animals responsible could be detected by clinical examination and the use of microscopical methods, without resort to biological examinations, which involved a considerable amount of delay.

These were the only two matters on which he wanted to comment, but he would like to stress the point that pasteurisation should not be endorsed by that meeting as an alternative to careful clinical examinations of dairy herds, backed up by a sound system of milk sampling.

Major J. A. Dixon (Leeds) stated that the admirable paper read had been so well covered in discussion that he had only a few remarks to make.

His experience over 30 years had convinced him that milk-borne epidemics of scarlet fever, typhoid fever, and diphtheria had become less frequent and he thought that was due to improved sanitary administration. But there appeared to be an increase in the frequency of outbreaks of food poisoning associated with milk and such incidents attracted great attention from the public and the press and required hard work and immediate attention from the officials concerned.

An outbreak had occurred comparatively recently affecting two schools in his area. The complete team of medical officers of health, veterinary officers and bacteriologists representing both the county and the city immediately tackled the subject and stopped further trouble and in the end it was decided that this outbreak had been due to the dirty surroundings under which the milk was handled and stored and was not due to either human or bovine source. Such outbreaks of food poisoning from milk always give rise to waves of enthusiasm for pasteurisation and it would seem that nowadays few people realised or remembered the origin or objects of pasteurisation. The public were informed that this process was for the purpose of rendering milk safe for consumption and the milk trade very carefully kept in the background the fact that pasteurisation was practised to enable them to handle and deliver milk which in itself was so dirty and unsatisfactory that without pasteurisation they could not trade it. He would ask all veterinary officers to take every opportunity of reminding those concerned of the real objects of pasteurisation and he would further remind those veterinary inspectors who are responsible for the supervision of pasteurisation plants that it was not sufficient to be satisfied that the plant was capable of effective pasteurisation but that daily visits were necessary to ensure that the temperature attained and maintained in such plant was satisfactory.

Milk pasteurisers appeared to have a dual personality. On the one hand they preached the advantages of pasteurisation as a protection to the public and on the other they purchased the cheapest and therefore often the dirtiest milk on the grounds that such dirt was unimportant because the milk was to be pasteurised, and in the end, unless they were carefully supervised they did not effectively pasteurise such dirty and dangerous milk. In his opinion milk pasteurisation as practised commercially, was an actual danger to the public health and it should always be remembered that pasteurisation in its origin was purely commercial and with the object of making profit, and had no real relation to public health.

The **Chairman** said that he was sure they all wished him to accord a very hearty vote of thanks to the two essayists. He thought they had had one of the best discussions that had taken place at any " National " Congress. The points had been stuck to and the very useful criticisms that had been made on that important subject were a credit to everyone. He had not taken part in the discussion because the time had been so fully occupied.

What struck him very forcibly was the necessity for routine inspection of dairy cows. The opinion of some medical men was that it was not necessary, but he thought from what they had heard that day if they were going to tackle this milk question properly routine inspection of dairy cows was essential in order to safeguard the milk supply of the country. He was very glad to hear the remarks of two such well known whole-time inspectors as Colonel Brittlebank and Mr. Eaton Jones, who sought the co-operation of the part-time inspectors and practitioners in this great work. It had seemed in some quarters that the opinion was that the only man who was capable of examining dairy cows was the whole-time inspector. He was sure there were no whole-time inspectors there who would subscribe to that view. If they were to tackle this question properly they wanted the help of every veterinary surgeon in the country—(applause)—and if they alienated the sympathies of the practitioners and the part-time inspectors, they would never get success in eliminating that disease. He hoped they would get that co-operation that they all wanted.

There was the vexed question of pasteurisation, and he was very pleased to hear the views of Major Dixon, who was speaking with very definite knowledge. Many milk dealers did not realise what the methods of efficient pasteurisation were. He thought it had been brought out in the discussion that the endeavour of them all should be to improve the conditions under which milk was produced, rather than insist on pasteurisation, which was often ineffective.

With those few remarks he would ask them to accord to the two essayists and those who had joined in the discussions, a very hearty vote of thanks. (Loud applause.)

It had been suggested that a resolution on this subject should be sent to Local Authorities, and he proposed the following: " This Congress unanimously resolves that the routine inspection of all dairy herds is essential as a Public Health measure."

The resolution was seconded by **Mr. Eaton Jones**, and carried unanimously.

Before the session terminated **Mr. J. Howard Jones** (Chief County Veterinary Inspector, Glamorgan) rose to say that the Milk and Dairies Order of 1926 made it law that every producer of milk was to be registered as such by the Local Authority concerned. This registration depended on the Sanitary Authority being satisfied that the premises used for maintaining the cows, and the dairy accommodation, were such that " clean " milk was procurable.

It was his opinion that the Ministry of Health here failed to take an excellent opportunity of securing protection to the public health of the nation, by omitting to make provision for the production by the producers of all milks, before registration, of a periodical veterinary certificate that no animal manifesting clinical evidence of tuberculosis or other disease communicable by its milk to the consumer, was on those premises.

He wished to have it pointed out that the Ministry of Health in this legislation wished to improve the hygienic qualities of the milk presented to the public—a splendid ideal, but it failed in the fact that it was the cow which produced the milk which was the vital consideration, and not the conditions under which the cow and her milk were handled.

It was his long experience that producers and milkhands seldom, if ever, recognised tuberculosis of the udder to be what it was, as it did not, until very advanced, alter the appearance or quantity of the milk produced from the affected portion, which evinced no pain or heat.

He voiced the wish that the Association might move a resolution that the Ministry of Health promote an amendment to the Order to this effect.

As the results of experiments on unanæsthetised dogs it is concluded that undesirable or even dangerous effects are liable to occur from the combined effects of digitalis and ephedrine. It is suggested that, when digitalis is being used in the treatment of cardiac conditions, ephedrine should not be used, or else should be used with extreme caution.—C. A. Johnson and W. C. Gilbert (*J. Amer. Med. Assn.*, **96**, 1931, 1668. Ex *Pharm. Jour.*)

The Veterinary Record.

September 26th, 1931.

Milk Hygiene.

If there be anyone who still entertains a doubt as to the interest the veterinary profession takes in the science of milk production, let him but attend a meeting where veterinarians are gathered together and milk happens to be the subject of discourse and his doubts will soon be dispelled.

The paper on " Milk Hygiene " given recently at Norwich by Messrs. McAllan and Howie, a report of the discussion on which we publish this week, was no exception to the rule and brought forth one of the best and most prolonged discussions of the Congress. Although the title chosen was capable of a wide interpretation, the essayists elected to confine their remarks chiefly to certain diseased conditions in mankind for which milk can directly or indirectly be responsible, saying just enough about general conditions to allow those who subsequently took part in the discussion to touch on many other important matters.

The incidence of undulant fever in man and its possible relationship to the milk supply, which was referred to in a recent editorial in our columns, was brought well to the forefront and the perennial question of the transmission of bovine tuberculosis to human beings, as was only to be expected, was dealt with by most of the speakers. The discussion once again shows the enormous importance which a veterinary inspection of cattle plays in the elimination from our herds of the cow with the tuberculous udder, and for this reason alone, even if there were not many others, the absolute necessity of associating the veterinary profession with the production of a clean milk supply. The Meeting unanimously decided to appeal to the Minister of Health to issue regulations making it obligatory that every cow producing milk for sale for human consumption should periodically be examined by a veterinary surgeon. That the Ministry of Health is now really waking up to the dangers to which our children may be exposed from bovine tuberculosis, is admirably emphasised by its recent publication of the monograph on " Bovine Tuberculosis in Man with Special Reference to Infection by Milk," a copy of which we would recommend our readers especially interested in the subject, to acquire.*

But tuberculosis is not by any means the only disease of the cow that endangers our milk, and without an adequate inspection many of these must go undetected. Several local authorities have now placed the whole of the supervision of their milk supply in the hands of their Veterinary Advisors with the most satisfactory results, for who is more suitable from his training and every-day experience to deal with the many questions involved, than the veterinarian? It is well known that disease is largely dependent on hygiene and sanitation; thus to place the control of the health of the cattle on one official, or as is often the case in England and Wales, on one authority, and the construction of buildings and general sanitation of the cowshed on another is undesirable. This is not only illogical and a duplication of duties which should be performed by one and the same person, but is confusing to the farmer, wasteful to the public and generally liable to retard progress.

To what we refer is the arrangement in the Milk and Dairies Order of 1926 which gives power to the County Councils to institute a veterinary inspection of cattle, although at present there is no obligation for them to do so, and places all the other provisions of the Order on the Borough, Urban or Rural Council concerned. We look forward to the day when not only will every local authority be obliged to carry out the veterinary inspection of the milk cows in its own area, but when every County Council will also be responsible for all matters dealing with the milk produced within its administrative boundaries. Should this amendment to our milk legislation south of the Border be carried out, it would enable the production of milk in the county districts to be uniformly controlled and allow the county authority to place the responsibility on its veterinary staff who could then be supplied with adequate lay assistance as is the case to-day in many of our foremost cities.

The vexed question of pasteurisation was much debated at Norwich and shows that we are still divided in our ranks as to its advisability as at present carried out. We would especially recommend our readers to ponder over the remarks of Major Dixon of Leeds, who forcibly pointed out that pasteurisation was instituted in this country chiefly as a commercial enterprise to improve the keeping qualities of milk rather than as a public health measure.

* " Bovine Tuberculosis in Man with Special Reference to Infection by Milk." Reports on Public Health and Medical Subjects, No. 63, Ministry of Health, Price 6d.

Diseased Meat Importation from Rural Areas to Smithfield.

Allegations that diseased meat has been allowed to come into London from the rural areas because of the difficulties put in the way of rural inspectors were made at the recent Sanitary Inspectors' Conference at Bridlington by Mr. Thomas Penman, of Finsbury.

He said that in the rural areas of England the meat regulations of 1924 were observed more in the breach than in the observance. In Finsbury alone since the advent of these regulations until the end of last year 375 tons of diseased English meat had been seized or surrendered. It came entirely from the rural areas to the London Smithfield district. Mr. Penman said that he blamed the parsimony of the rural district councils, who placed the onerous duty of meat inspection on shoulders already overburdened. There should be centralized slaughtering in the country districts, so that the inspectors might know where and when they could inspect the meat.

Clinical and Case Reports.

Brain and Meningeal Abscesses in Sheep.

Middle Ear Suppuration.

By

F. T. Harvey, F.R.C.V.S., St. Columb.

Of the domestic animals sheep appear the most susceptible to disease of the central nervous system. This applies not only to the specific diseases, parasitic invasions, and parturient toxæmias, but also to pyogenic infections, since abscesses in the brain and meninges of sheep seem of wide distribution, occasionally assuming almost enzootic characters. "Rounders" and "Staggers" are terms commonly employed by stockmen to describe disease of the nervous system in sheep, the former no doubt a survival of the days when hydatid disease was frequently met with, but now rarely seen except in certain districts. I have never seen it in Cornwall and in cases of so-called gid one is likely to find an abscess within the cranial cavity.

The apparent association of brain abscess with dipping is peculiar. Many years ago (1895) a client lost 14 sheep two or three weeks after dipping; it was supposed at the time that the dip, an arsenical one, had been carelessly prepared and too strong. The day was hot and the sheep had been driven a mile to and from the dipping place. The affected were unable to stand, generally convulsed and died of exhaustion in the course of three or four days. Two were *post-mortemed* and in each pus was found within the brain case. In 1924 two sheep in each of two flocks died with similar symptoms to those mentioned. One pair was *post-mortemed* and meningeal abscesses found in both animals. In 1930 two ewes became affected on the twelfth and fifteenth days after dipping. One when first seen amiss could walk about and take food but frequently fell over. Two days later she was unable to stand without support and was subsequently destroyed. A subdural abscess was found near the petrous temporal bone and a second one on the surface of the cerebellum of the same side. The ear bones were examined and on the abscess side the ossicles were found bathed in pus of a greenish tinge.

The course of brain abscess in sheep is variable, some animals dying quickly, others lingering for a week or more. Recovery seems possible in rare cases. The affected lie on the side opposite to the abscess and try to throw themselves back if turned over. Convulsive movements are more or less continuous until death. In one case some straws had become firmly fixed in the external meatus as a result of rubbing movements on the ground. The animals present a pitiable appearance. R. Daubney has recorded an outbreak of "Brain Abscesses in Sheep" in the Annual Report of the Department of Agriculture, Kenya Colony, 1929. A copy of the paper is appended. Brain abscess forms a very interesting chapter in comparative pathology. The condition in man has been exhaustively dealt with recently by Evans.[1]

Etiology.

Abscess in the brain or meninges may arise from an adjacent or a distal primary focus. The former includes affections of the ear—mastoiditis, thrombosis of veins, and also suppuration in the nasal cavity and accessory sinuses, and likewise trauma; the latter, or hæmatogenous spread, arises from suppuration either within or without the thorax. "Cerebral abscess established as a complication of intrathoracic suppurations is of considerable interest in that it is usually the sole manifestation of pyæmia"—Evans. In man the frequency of brain abscess in diseases of the middle ear and antrum compared with the nasal sinus is as 7 to 1 and lung foci furnish 50 per cent. of the cases due to distal infection. "A man with epistaxis had his nose plugged with a tampon soaked in perchloride of iron and death from meningitis followed, iron being found in the olfactory bulbs. Droplet infection reaching the body through the nasal cavities can obtain direct and rapid access to the subarachnoid space. and fine granules may reach the brain by a direct nasal route within an hour of their impact on the nasal mucosa."[2]

The infestation of the nasal sinus of sheep by the larvæ of the œstrus would seem a likely source of brain abscess, but in the cases examined no larvæ have been found. It would seem possible that irritation of the nasal mucosa by dips might play a part in causing brain abscess, but it is more likely that dipping, if it plays any part, acts by starting a pyæmic process in an animal with an existing focal infection in the lungs or elsewhere. Whether the suppuration in the middle ear in the case above mentioned was primary, and the direct cause of the abscesses in the dura and cerebellum, or part of a pyæmic process, seems doubtful. In cases of brain abscess in animals, particularly sheep, it is necessary to examine carefully the carcasses for evidence of suppuration in distant organs, notably the lungs, before arriving at any conclusion. In dogs, although suppuration in the ear is so common and chronic, infection of the brain case by extension seems very rare, the reverse of that which occurs in man. In the horse all cases of brain abscess which I have seen apart from trauma, have occurred in connection with strangles and were therefore a pyæmia, while in cattle malignant catarrh is perhaps the most common cause and an example probably of direct extension.

References.

[1]Evans, W., M.R.C.P. "The Pathology and Etiology of Brain Abscess." *Lancet*, June 6th, 1931.

[2]Report on Public Health and Medical Subjects, No. 54. H.M. Stationery Office.

. . . . .

Abscesses in the Brain of Sheep.*

By R. Daubney.

A small outbreak of disease occurred on a farm in the Nanyuki area, in which animals were observed to die with symptoms of nervous derangement (usually paraplegia) within a period of a few hours after having first been noticed as ill.

On one farm more than 70 animals died showing similar symptoms within a period of two or three weeks; and it was remarked that the majority of the deaths occurred in two or three flocks; the remaining flocks furnishing no cases of the disease at all. We were fortunate in being

*Kenya Colony: Department of Agriculture Annual Report, 1929.

able to carry out two *post-mortem* examinations on typical cases of the disease; in both cases there was an abscess at the base of the brain in the pituitary fossa, involving both the anterior and posterior portions of the pituitary. A third case, the brain of which was despatched to the laboratory in formalin, showed a similar abscess in the olfactory lobe. In all cases the pus was similar to that seen in Preisz-Nocard infections of sheep, and diphtheroids could be demonstrated in sections of the affected tissues. It would be of interest to obtain cultures of the organism should further cases of the disease arise and to determine its identity.

An Extraordinary Accident with an Extraordinary Recovery.

By

H. Llewelyn-Jones, M.R.C.V.S., Denbigh.

On June 25th last a five-year-old mare was turned into a shed, the entrance into which was a five-bar iron gate fastened by means of a chain round the post. The top rail was 1¼ inches wide and ½ inch thick. This at one time had been rivetted to the upright bar—but had somehow or other been forced from its socket, so leaving a space between it and the upright. This allowed a certain amount of " play " in the top rail.

The photograph will indicate what I mean and show the length of that rail that penetrated the animal's throat., *viz.*, 14 inches.

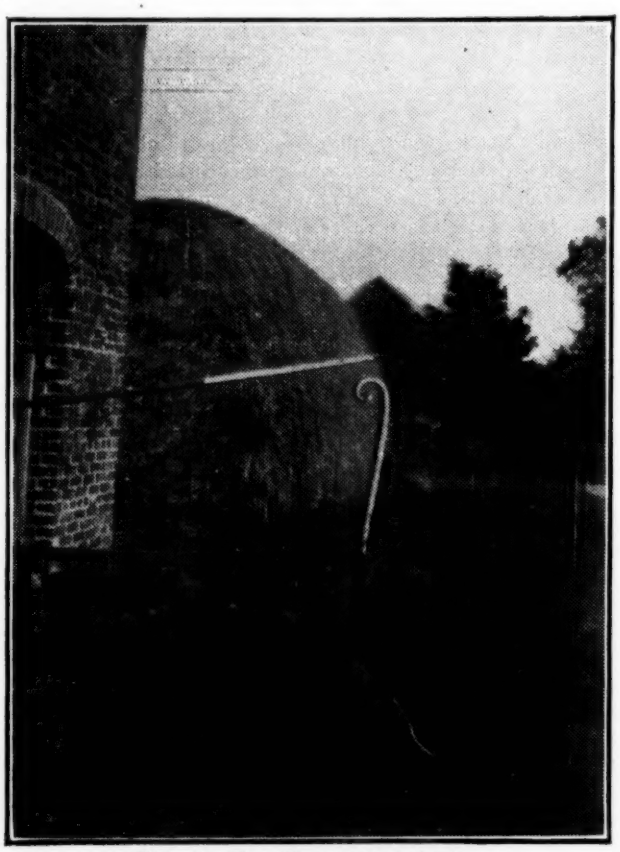

Fig. 1.—The Penetrating Rail.

The accident must have happened by the mare attempting to push the gate open, for she got her head into the space between the top and upright rails, and when she found herself unable to go forward started to pull backwards, and she must have pulled with all her strength for the rail to penetrate the skin on the left and pass right through to the other side and out through the skin on the side of the cheek. Whilst pulling backwards she must have twisted her head to the right, so that the angle of the jaw was well under the trachea—otherwise the rail would have come against the inner surface of the ramus.

That was the position in which the owner found her, and with help he bent the upright and pushed her head from the left side—sliding in off the top rail, so to speak.

About an hour elapsed before I saw her and she was then standing in a loose box—trembling badly; her coat was staring and she looked very sorry for herself. It was apparent that neither of the carotids nor the jugulars had been severed, for there was no appreciable amount of hæmorrhage. I could also see—or rather hear—that the trachea had escaped injury, for there was no air escaping through the neck wound. Upon opening the lips of the wound on the left side, I could see that the lower end of the parotid gland was lacerated— the jugular vein was plainly exposed and so were the œsophagus and trachea. The rail had passed between all these organs and the vertebræ. What the damage was on the other side of the neck I could not say, beyond the fact that there was no serious hæmorrhage.

The accompanying photographs show the entrance wound on the left side and the exit wounds on the right, and these were taken eight days after the accident.

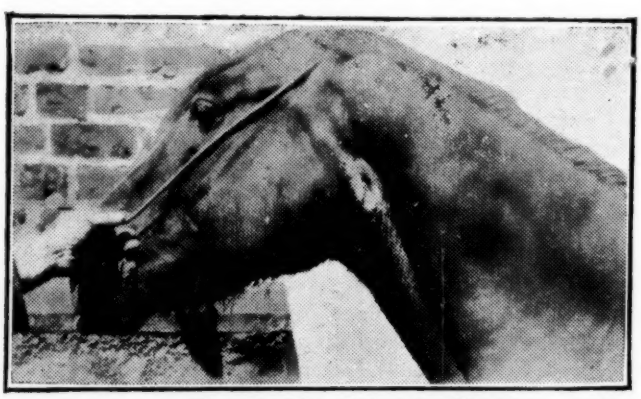

Fig. 2.—The Entrance Wound.

Fig. 3.—The Exit Wounds.

The question was—what is going to happen to the case? It was difficult to believe that sepsis would not set in such a wound caused by a dirty iron bar. My opinion was that the wound would become septic and that the animal would die of septicæmia and complications.

On this occasion I was certainly not an optimist, but I procured a can full of boiled water, cooled it down and added tincture of iodine to it and syringed the wound well. Most of the injection returned *via* the entrance wound, but when I passed the pipe over the trachea and closed the entrance wound as well as I could with my hand, some of the fluid came out through the openings on the cheek on the other side. Having done this I injected some oily wound dressing containing ol. tereb., as far into the wound as I could with a 10 c.c. syringe, and gave her a dose of anti-tetanic serum.

I left a Higginson syringe, some iodine and wound dressing with instructions how to proceed.

I saw the mare on the following day and, much to my surprise, there was a total absence of swelling in the region—temperature was only 102° F., breathing normal, pulse good.

Anything she attempted to drink returned through the nostrils, she did not attempt to eat anything. Treatment was continued on the same lines. On the third day she appeared so hungry that the owner's mother, whilst on her way to feed the fowls, could not resist giving her some of the fowl corn—this she masticated well and attempted to swallow, but this also returned by the nostrils. On the fourth day, however, she actually did swallow some clean water—for I had placed a measured quantity in a bucket. From now on she was able to partake of gruel, linseed-tea, milk, etc., and eventually managed some green food.

The wounds never actually suppurated.

I have omitted to mention that she received injections of "Cytor" on four occasions during the first eight days. After 14 days indoors she was turned out to grass, but for some considerable time a little food and grass-stained fluid returned *via* the left nostril only.

The wounds gradually diminished in size, and in spite of the fact that very little attention was given to her after she was turned out she made a good recovery and is now in constant work.

This is yet another proof that it is best to attempt to do something with cases that are apparently hopeless. Nature is sometimes wonderfully kind: no doubt the animal's natural powers of resistance played a great part in this recovery.

Foot-and-mouth Disease Diagnosis.

Replying recently to Portadown Urban Council's resolution suggesting that when a case of foot-and-mouth disease was discovered all veterinary surgeons within a 25-miles radius should be given an opportunity of studying the symptoms, the Minister of Agriculture (Northern Ireland) stated that he was satisfied that the procedure suggested would be open to at least one serious objection in that it would result in the spread of infection if the disease existed.

Even if the procedure was without risk, he added, it seemed doubtful whether it would attain the object which the council had in view. A definite diagnosis was a matter for a recognised expert with special qualifications, and such qualifications could not be acquired by casual demonstrations.

Tropical Veterinary Service Report.

Siam.

Report of the Veterinary Division of the Ministry of Commerce and Communications for the period 1924 to 1929.

In this Report Mr. R. P. Jones, M.R.C.V.S., reviews, first, the history of this Department, of which the first head was Mr. H. S. Leonard, M.R.C.V.S. (1904). Other predecessors in Siam were Mr. G. J. Harvey (1914-17) and Mr. H. S. L. Woods (1919-23). Mr. Jones was appointed early in 1924.

Census.

Elephants	Horses.	Cattle.	Buffaloes.
9,390. ...	297,800. ...	4,408,000. ...	4,571,000.

Sheep and goats, not numerous; pigs, several millions. According to law, all cattle over three years of age must be registered, and an identity card showing the individual markings and hair whorls is issued to the owner. Transfers are recorded: births and deaths are reported monthly. It is admitted that these figures are only approximate, and probably constitute a considerable under-estimate.

Staff.

The establishment in 1918 was one Veterinary Officer, one Superintendent of Animal Husbandry, 40 officers and 40 students

Disease.

Rinderpest.—One thousand nine hundred and forty outbreaks were dealt with. The policy is to inoculate with serum alone at intervals of seven to ten days until the disease is eradicated. It is stated that the whole of Southern Siam has been cleared by this method, and has remained free from infection for three years. Previously in-contacts received serum and their mouths were smeared with infective saliva, but the owners objected to the resulting sickness, which sometimes interfered with agricultural activity.

Wild-pig are very susceptible and disseminate infection: it is thought that the domestic pig is also attacked.

A policy for the eradication of rinderpest from Siam is being followed, and co-operation with Burma, French Indo-China and Malaya is urged.

Hæmorrhagic Septicæmia is widespread. An efficient vaccine producing immunity for one year is prepared by the Pasteur Institute and 52,000 cattle and buffalo were inoculated in 1929-30. Although chiefly a disease of buffalo, cattle are now known to suffer, and occasional cases are seen in the elephant.

Anthrax is recorded in cattle, buffalo and elephant and an aggressin is employed. The dose for an elephant is between 50 and 80 c.c. and the injection is made behind the ear by the inoculator who sits on the head.

Foot-and-mouth disease, surra, epizootic lymphangitis and rabies occur.

Public Health.

Twenty-two thousand cattle are slaughtered annually at Bangkok, and 12½ per cent. are infected with tuberculosis. Onchocercosis occurs in 36 per cent.

The meat of pigs, of which 200,000 are killed annually in Bangkok alone, is not yet inspected.

INDUSTRY.

Mutton is imported from Australia. A considerable export trade in livestock takes place from Siam to various parts of Malaya. In 1928-29 this comprised 14,000 buffaloes, 25,000 cattle and 70,000 pigs.

Colonial Veterinary Services Report.

Straits Settlements.

Annual Report by the Veterinary Department, 1930.

This report deals only with the Settlements of Singapore, Malacca and Penang (including Province Wellesley).

CENSUS.

Cattle and Buffaloes	...	...	35,850
Human Population	...	...	1,162,000
Area in Square Miles	...	...	1,508

STAFF.

Captain F. J. Sheedy, M.B.E., assumed the new office of Principal Veterinary Officer in July, having been transferred from Tanganyika Territory. The establishment of the Straits Settlements consists of three Veterinary Officers and ten Indian graduates. The veterinary organisation of the Federated Malay States and the Unfederated States is not dealt with in this Report.

DISEASE.

There were no outbreaks of rinderpest or hæmorrhagic septicæmia.

Rabies, swine fever and foot-and-mouth disease are recorded in Province Wellesley.

LIVESTOCK TRADE.

The following surplus figures of imports over exports are of interest :—

Cattle	...	...	...	...	15,500
Buffaloes	...	...	...	...	1,800
Sheep and Goats	...	...	...		51,000
Pigs	...	...	...	...	140,000

GENERAL.

Captain Sheedy concludes :—" During 1930 and prior thereto the veterinary service of the Colony was organised mainly with a view to the control of animal imports and the administration and application of quarantine legislation enacted with this object. Amongst future developments which appear to be indicated, are an extension of broader veterinary activities, improved quarantine arrangements, a more intensive policy of research into swine and poultry diseases and some system of propaganda and instruction directed towards the improvement of existing animal husbandry conditions. As we progress in our efforts to exclude and eliminate animal disease we must naturally tend towards economic constructive work on the lines indicated. The mere maintenance of protective measures is in itself insufficient in modern times and every avenue of sound development and progress must be explored and fostered."

Abstracts.

[**Paratyphoid in the Rabbit.** LESBOUYRIES, M., *Recueil de Méd. Vét. de L'Ecole D'Alfort*, cvii—5, pp. 257-264.]

Opportunity was taken to investigate an epidemic of abortions among rabbits. A rabbit died in the last week of pregnancy, was examined and yielded an organism showing morphological and cultural characteristics of *B. paratyphoid B.*, type Breslau or Aertrycke. A pregnant rabbit fed on the culture went full period, but the young died before reaching the age of eight days and from heart blood cultures the organism was recovered. Maternal serum heated to 58° C., and unheated at a titre up to 1 in 1,000 agglutinated the organism. This rabbit again became pregnant and had five young, the serum of two of which agglutinated the organism at a titre of 1 in 10,000 and one whose serum did not agglutinate and whose stomach contents were sterile. The remaining two yielded cultures of the organism. Another rabbit aborted eight days pre-term. Stomach contents of the fœtuses contained the organism which, used as antigen, was agglutinated by the maternal serum 20 days later to a titre of 1 in 1,000. Antigen from original source was only agglutinated at 1 : 300. This female aborted again and then died accidentally. Her serum, procured immediately after death, agglutinated the original antigen at 1 in 10,000. *Post-mortem* examination showed a thickened uterus containing pus and having an ulcerated mucous membrane. *B. paratyphoid B.* was recovered in pure culture from abscesses in the uterine wall.

Rabbits fed with pure culture of the bacillus caused abortions and sterility. Death occurred in two cases six months after infection. In one of these, uterine lesions similar to the previous case and accompanied by bowel lesions and liver hypertrophy were found. In the other, bowel lesions only are described. The organism was recovered in both cases from the heart blood and bone marrow. The titre of the serum from these two rabbits had never exceeded 1 in 1,000 during the periods of observation.

J. K. B.

[**The Appearance and Significance of Vital Staining Erythrocytes in Domestic Animals.** NATSCHEFF, J., *Wiener Tierärztl. Monatschr.*, xviii, 9, 259, *et seq.*]

In the normal animal, red blood cells develop from the nucleated state in the red bone marrow. Should the normal ratio of mature to nucleated cells be upset, *e.g.*, by the sudden depletion in the number of circulating red cells, the bone marrow, forced to make up the deficiency, causes immature red cells to be washed into the blood stream. In this class of immature red cells vital-staining erythrocytes or reticular cells are found. These cells have a granulo-filamentous structure and are named " vital staining " because of their capacity of taking up stains in the fresh unfixed state. Various methods can be employed for the preparation of specimens for microscopic examination. Close inspection of a prepared specimen shows that vital staining cells have a net-like structure of fine filaments in which are coarser granules. Their structure allows them to be graded into three groups : coarsely granular, moderately coarsely granular and finely granular. The younger

the red cell, the more coarse are the granules. These groups embrace all cells from those almost filled with granules to those showing only a few minute filaments.

Isolated nucleated red cells are sometimes found in the blood. In the new-born (human beings and animals) the presence of a number of vital staining erythrocytes is a sign of active blood building. Healthy adults may possess 1 to 2 per 1,000 while a newborn child may show 11 per cent. Adult dogs are said to possess from 0·3 to 8 per cent. and a pup 30 to 80 per cent. Adult guinea-pigs have about 0·5 per cent. and the newborn 10 to 30 per cent. Twenty horses, 12 cows and three goats showed no vital staining erythrocytes when examined by the author. In only three out of 11 calves examined were any found and none were seen in eight foals. In adult dogs the types found were both fine and coarsely granular. In adult pigs, which showed from 0·3 per cent. to 1·3 per cent., type (2) predominated though type (1) was seen. In young pigs up to 14 per cent. were found of all three types. In hens, 15 birds examined showed a percentage of 2 to 72. Type (3) predominated.

Increased appearance of vital staining erythrocytes is seen in anæmia and has been artificially produced. The mere decrease in the number of circulating cells does not, of itself, produce an increase unless the bone marrow is stimulated, *e.g.*, 15 litres of blood taken from a horse in five days showed no reticular cells. There is little or no increase in chronic tuberculosis or in cachexia, but if iron or arsenic therapy is introduced a sudden increase occurs. Increase has also been shown to occur during pregnancy and after exposure to Röntgen rays and quartz vapours.

In vital staining erythrocytes of cats, rounded bodies close to the periphery are seen (Schmauch corpuscles). These have also been reported in calves. Their origin is not known with certainty, but they are believed by some to be nuclear residue. Schmauch considered their presence to be due to marrow stimulation from bowel intoxication and they are possibly connected with intestinal parasitism.

Granulo-filamentous substance is albuminous in nature and not a waste product. It is believed to arise by gradual reduction from the spongioplasm and retains from it the original quality of staining with basic stain. The function of vital staining cells is not well known. The opinion is held that they are the product of a pathological or physiological blood regeneration and that increase in their number is the earliest sign of reaction in the bone marrow. The estimation of their presence affords a useful guide to prognosis and treatment in anæmia and a study of their morphology indicates the course of the illness.

J. K. B.

[**The Occurrence of Gærtner Infection on Fox Farms.** Schoop. *D.T.W.* No. 29. p. 449.]

The author refers to the great increase in the incidence of Gærtner infections on fox farms, where commonly whole litters are involved. Enteritis infections in furred animals have been reported from America and Europe, but Meyn states that the subject is still involved and the solution of the problem will need the combined efforts of veterinary scientists and breeders. The writer has made observations on the disease as noted in whelps six weeks to a few months old, and the symptoms are given as follows:—The animals refuse food and are cramped or paralysed in the hindquarters. Sometimes death occurs suddenly after an illness lasting only a few hours. Recovery has been reported in only one case.

On *post-mortem* examination the most striking change is in the spleen, which is enlarged four or five times its normal size. The intestinal lymphatic glands are swollen, the liver is enlarged and the edges somewhat rounded. Occasionally jaundice, causing a yellow colour of the internal organs, is noted. The intestinal mucous membrane is swollen. Hæmorrhages occur under the serous membranes and in the lungs. Material from the organs when sown on Drigalski plates gives blue colonies composed of gram negative, non-motile rods, which immunologically, biochemically and by mouse experiment correspond to *B. enteriditis Gærtner.*

Infection occurs through the alimentary canal and the following causes are given:—

(1) The quality of the flesh which is fed;
(2) The presence of carrier foxes; and
(3) Infected rats and mice.

Breeders often feed foxes with slaughterhouse offal and poor quality meat, flesh of animals killed *in extremis* as well as aborted or dead calves; also other materials which may harbour the micro-organism in great numbers, especially as it can be found in the liver and gall bladder of apparently healthy cattle. Experiments have been conducted to ascertain if carriers exist, but no definite result has so far been obtained. Bacterial preparations are frequently used to exterminate rats and mice, and infected rodents, if eaten by foxes, may transmit the infection. Also they cause soiling of the food by their excrement. Young foxes are most susceptible to Gærtner infection and it is doubtful whether the presence of intestinal threadworms predisposes to an attack. Since only cadavers have been examined, the author cannot say whether a diagnosis could be effected by clinical methods, such as palpation of the enlarged spleen.

With regard to prevention, the first line of defence is strict attention to the food and enclosure hygiene. The flesh from animals slaughtered *in extremis* and all suspicious meat should be examined bacteriologically. Meat may be rendered safe by proper cooking. Carcasses must not be fed raw. Infected enclosures and boxes should be cleansed and disinfected as well as the food and drinking utensils.

W. L. S.

[**The Veterinary Surgeon and Fur Animal Breeding.** Rotter, Dr. *Prager Archiv. f. Tiermed.* 1931. Vol. 11. No. 6.]

The author draws attention to this new field open to a few veterinary practitioners and gives some general advice on how to become acquainted with fur-bearing animals, silver foxes in particular. The commonest veterinary services required are the diagnosis of worm infestations by fæcal examinations, the dosing of these animals and the killing of them. Rotter recommends the employment of intracardiac injections of chloroform for the latter purpose. In conclusion, he gives a list of causes of death of farm animals which do not prohibit the use of their flesh for the feeding of fur animals.

J. T. E.

N.V.M.A. Divisional Report.

Southern Counties Veterinary Society.*

A meeting of the Southern Counties Division, N.V.M.A., was held at the South-Western Hotel, Southampton, on Thursday, July 2nd, with the President (Major E. S. Martin) in the chair. There were also present: Messrs. J. H. Ripley, J. Facer, W. M. Caudwell, C. Pack and G. N. Gould, junr. (members), and Mr. J. B. White (Salisbury), a visitor. Apologies for absence were received from Messrs. G. P. Male, H. Gray, G. H. Livesey, Lieut.-Colonel P. J. Simpson, Messrs. J. B. Tutt, H. C. Rockett, Miss Cust, Dr. A. Leslie Sheather, and Major Taylor.

Correspondence.

The Secretary read a message from Colonel Simpson, as President of the "National," to the President and members of the Society, wishing them a well-attended and enthusiastic meeting and asking every member present to take a whole-hearted interest in the Society—not from the comfort of his armchair but by attending every meeting, contributing to the discussion, writing papers and making his next-door neighbour join and do the same. He added that at the termination of his year of office it would give him the greatest pleasure to know that the Southern Counties Society was again firmly established on progressive lines. He further asked that every effort should be made by the members to attend the Congress at Norwich.

A letter was also received from Mr. Henry Gray regretting his inability to be present, wishing the Society all success and pointing out that this was the first invitation he had received from the Society for 20 years, during the whole of which time he had been an honorary member.

Mr. G. H Livesey as past President during the years 1913-1921, also conveyed his good wishes to the Society with the hope that the united efforts of the members would resuscitate it and bring it once again into prosperity.

A letter was read from the N.V.M.A. concerning complaints which the Registrar of the Royal College had received that members of certain divisions were displaying on their notepaper or account forms letters indicating their membership of the Society in addition to the letters M.R.C.V.S. and requesting a complete discontinuance of this undesirable practice.

Statement by the Secretary.

The Secretary then gave a complete report of the affairs of the Society, saying that since his appointment all members had been communicated with by means of a President's Appeal for Support, and also by notification of that meeting. Members whose subscriptions were unpaid had also been communicated with in addition to this; but there were still 14 unpaid. A number of enthusiastic responses had been received, notably from most distant members, promising interest and support—apathy appeared to exist amongst members more conveniently situated. The Secretary also said that he had tried to introduce a Bankers' Order method of paying subscriptions, supplying members with the requisite form, which required only their signature. To date, only four members had utilised them. The method, if generally adopted, would save time and money both to the members and to the Society. He had communicated with Mr. J. H. Ripley, who was elected Vice-President subject to his consent at the last meeting, and had received an acceptance of the office from him, on condition that it did not automatically imply that he would become President next year. As regards the future programme, a meeting was arranged for September, at which Professor J. H. Wright would be the essayist, and it was hoped to arrange a surgical demonstration in addition. He had in hand also details of a meeting for December and for the following Spring.

The Secretary also wished to have the members' views on a suggestion that this Society should depute two or three speakers to address a public meeting arranged in connection with the Royal Show which was being held at Southampton in 1932. He suggested that the meeting should be of an educational character to countermand some of the unfortunate impressions which were conveyed to the public by the Press in publishing articles and letters by unqualified people on veterinary subjects. He particularly referred to foot-and-mouth disease, the Tuberculosis Order and swine fever. It would also be some publicity for the profession as a whole, provided it was dealt with from the purely impersonal point of view. He had seen this scheme adopted about seven years ago in connection with the Welsh Royal Show, the subject then being Tuberculin Testing. The aim and object of the meeting was, however, ruined by a number of veterinary surgeons present occupying the whole time of the meeting in criticising the various methods of test. It would be essential that any members present at the meeting should support the speaker. Subject to the approval of the members, he would get into communication with the local Hon. Secretary of the Royal Agricultural Society, asking him if his Society would be prepared to accept the offer of speakers, to arrange accommodation and to publish details of the meetings.

After some discussion, the members agreed that the object appeared to be laudable, and would possibly be a great success, and the Secretary was instructed to carry out the preliminary arrangements. The Secretary also said he had other suggestions to make, but in view of the sparseness of the attendance he would leave these until a future meeting. In conclusion, he said that he had accepted office for one year and that he expected the active support of the members of the Society to a far greater degree than that exhibited to date. He regretted that, failing that support, he was not prepared to devote the time and attention which the affairs of the Society required to the secretarial work, as there appeared to be no object in running a Society whose members showed neither interest nor willingness to support.

Presidential Address.

The President (Major E. S. Martin) then gave his Presidential Address, as follows:—

I have the honour to-day of addressing you again as President of this Division of the National Veterinary Medical Association, an organisation which was formed for the purpose of safeguarding and furthering the interests of members of our profession. I regret that owing to illness I was absent from our last meeting, and I wish now to thank you for electing me to this office.

* Received for publication, August 18th.

There have been several admirable Presidential Addresses delivered lately and published in the *Veterinary Record*. They reviewed comprehensively the present state of the profession, so I will not attempt to equal them, but will direct my remarks to the purpose of this Society.

As a Division of the N.V.M.A. we are greatly indebted to the gentlemen who give so much of their time attending its various committee meetings, and though the effect of their work may not be apparent to all, it must be remembered that they have to take a very wide outlook, covering all the different branches of the profession. The general practitioner, nominally the "Backbone of the Profession," does not appear to get the proportion of support that is his due, although he is in the majority. He would more aptly be termed the "Cinderella of the Profession." He certainly does all the dirty work, and has to chance getting paid for it. He is steadily being encroached upon in various ways, and no committee has been set up to see that *he* does not get less than £400 a year. That is reserved for young "Advisory Officers" and other whole-time officials, who are bound to deprive him of some of his work, whether or not they learn "professional etiquette."

A Society such as this should be a means of protesting against these invasions into the practitioner's daily routine. Alternatively, it could use its influence by means of a small amount of publicity work to let the public know the value of our services, and what we have accomplished in the prevention and cure of disease, and can yet accomplish if given the opportunity.

I hope you will not hesitate to bring forward items of technical interest or matters affecting your own professional welfare. If the latter are of a private nature, they can be dealt with in committee or by the Council of the Society. We have sufficient funds, and if only we can raise some enthusiasm we ought to be able to make good use of them. I will conclude by asking you, by every possible means, to help our Hon. Secretary to bring the Society to a flourishing condition, a success which he deserves for the time and thought that he is giving to the affairs of this Society, including the paper which you will hear to-day, which was compiled during his indisposition.

Paper.—The Hon. Secretary now read his paper on "Canine Obstetrics," which was heard with interest and appreciation by the members. [Mr. Gould's paper, and a report of the ensuing discussion and the essayist's reply, are published earlier in this issue.—Ed.]

Votes of thanks to the President for his Address and to Mr. Gould, were passed with acclamation, and concluded the proceedings.

Geo. N. Gould, *Hon. Secretary.*

Animal Diseases Research.

"Whatever economies are effected in the Ministry of Agriculture's expenditure it would be folly to slacken the research work on animal diseases. Sufficient attention has never been paid in this country to eliminating the main sources of loss. Tuberculosis is serious enough, but abortion and Johne's disease are probably more costly. Swine fever is another expensive disease which checks the proper development of the pig industry in this country. It would be false economy not to press on with research on the cause and prevention of these diseases."—*The Field.*

Experiments on Animals.

Home Office Report for 1930.

The Home Office has published the report of its Inspector under the Cruelty to Animals Act, Major J. A. Giles, on the experiments performed on living animals in Great Britain during the year 1930 (140, price 1s. 3d. net).

The total number of experiments was 450,822, being 47,681 more than in 1929. In no case has a certificate dispensing entirely with the use of anæsthetics been allowed for anything more severe than subcutaneous venesection. Serious operations are always required to be performed under an anæsthetic. These numbered 18,303, and show a decrease of 916 on 1929. Experiments consisting of inoculations and hypodermic injections numbered 430,063, an increase of 48,597 on 1929.

In the case of serious experiments, the animals must be kept under an anæsthetic during the whole of the experiment, and must, if the pain is likely to continue after the effect of the anæsthetic has ceased, or if any serious injury has been inflicted on the animal, be killed before it recovers from the influence of the anæsthetic.

The Inspector writes:—

"The returns show that during the year 1930, 25,259 experiments were performed by 24 licensees in the course of cancer investigations. A large number of experiments, almost wholly simple inoculations and similar proceedings, were performed either on behalf of official bodies, with a view to the preservation of the public health, or directly for the diagnosis and treatment of disease. Several county councils and municipal corporations have their own laboratories, in which bacteriological investigations are carried on, including the necessary tests on living animals; and many others have arrangements by which similar observations are made on their behalf in the laboratories of universities, colleges and other institutions. The Ministry of Health and the Ministry of Agriculture and Fisheries have laboratories which are registered for the performance of experiments having for their object the detection, prevention, and study of diseases of man and animals. In other places experiments have been performed on behalf of the League of Nations, the Commonwealth Government of Australia, the Home Office, the Ministry of Pensions, the Mines Department, the Chemical Defence Committee, the Medical Research Council, the Naval Medical Service, the Army Medical Service, the Royal Air Force Medical Service, the Department of Health for Scotland, the Fishery Board for Scotland, the Department of Scientific and Industrial Research, and the Port of London Authority. Two hundred and seventy-three licensees report over 99,000 experiments which were performed for Government Departments, the Medical Research Council, county councils, municipal corporations, or other public health authorities; and 46 licensees performed over 181,000 experiments for the preparation and testing of antitoxic sera and vaccines, and for the testing and standardising of drugs.

"During the year the several registered places have been frequently visited by the inspectors, and a large number of experiments have been witnessed. For the most part visits have been made without previous notice. We have found the animals suitably lodged and well cared for, and the licensees generally attentive to the requirements of the Act and the conditions attached to their licences by the Secretary of State."

War on Tsetse Fly.

Experiments in Uganda.

The Times of August 26th published the following article from its Correspondent at Kampala:—

The problem of the control of the tsetse fly in Uganda is of great importance for the preservation of stock. Africans cannot usually keep stock where the tsetse fly, *G. morsitans*, exists, although they can do so where the ordinary "sleeping sickness" fly, *G. palpalis*, is found.

When *G. morsitans* enters a district the stock dies, the native African owners leave, and the country becomes deserted and entirely unproductive.

"What brings the fly—why are they very numerous at one place, scarce in another, and absent from a third, although the locations are, to all appearances, similar? Why are certain pockets of bush used as breeding places from which it is believed the fly spreads? Do they always go back to the same centres if they cannot find food farther afield? How can country be brought back for occupation and production once it has been occupied by this scourge? These are some of the problems on which the Veterinary Department of Uganda is now working.

"Among the measures which are being tried is an experiment which may bring back South Ankole to general prosperity. Attempts are being made to open to stock the unlimited water supplies of the River Kagera and the lakes, and encourage the natives to return to those places which are now useless.

"The fly is found in bush country not too heavily wooded, with water in the vicinity. Densely wooded land often acts as a barrier to the spread of the insect. In fact, game passing through such country get rid of the fly.

"The fly has special breeding places, usually in soft, dry earth under logs, bushes, and sides of anthills. The larvæ, which measure about ¼-in. in length, burrow into the ground for a few inches and there pupate after four or five hours. The period of pupation varies, but is usually about a month. The female fly is generally reported to be the more rapacious and attacks any animal fiercely. It is stated by some authorities that the fly requires the blood of one of the larger mammals before reproduction takes place. The life of the adult wild fly is about two to four months.

"The fly congregates where food is obtainable, and the roads through fly belts are usually heavily infested. Pedestrians, cyclists, and motorists all attract the fly and disseminate it. In an endeavour to check this form of dissemination a system of smoke houses was devised by Mr. W. F. Poulton, the Director of Veterinary Services, Uganda. Every car passing from a fly area to a free area passes through a smoke house where fumigation takes place. As many as 200 flies have been seen on and in a car entering a smoke house. When the car emerges the flies have gone—where, no one has yet discovered.

Experiment in Ankole.

"The fly has undoubtedly increased in Ankole north of the Kagera River, as in comparatively recent times that country carried a large stock of cattle, and now hardly a beast is to be seen. Of late it has become evident that there is some unknown factor which attracts the flies to certain localities from which they are spread. Two favourable conditions are water and shade, but there must be something else, and a study of the vegetation is now being made in order to see if there is any correlation in this respect between the known favoured localities.'

"In Ankole three areas have been selected for experiment. By cutting out the bush in certain places, thus destroying the permanent homes of the flies, the larger areas in which they are found will be made free. Thus, by tackling, say, those five essential square miles where the fly finds everything it needs, it will be possible to reclaim 50 square miles in which the tsetse is scattered about. Bush and trees are felled and left lying on the ground until an opportunity occurs for a thorough burn-off. The burning must be complete, or the unburned bush will afford the tsetse a breeding place. Therefore, burning is left until all vegetation, including the felled timber, is thoroughly dry.

"The areas selected for the experiment are a triangle at the junction of the Kagera and Kakitumba rivers; an area at Ntundu on the road a few miles beyond Kikagati Ferry; and the valley of the Lugeye river, near its junction with and lake system near Gayaza. In the first area, about 10,000 acres of fly-infested bush was cleared with the intention of giving cattle on the splendid grassy but waterless downs to the north an easy and fly-free access to water. The second area, at Ntundu, near Kikagati, will be about 3,000 acres when finished, and comprises hills and valleys. About one-half has been cut. The work is heavy in some places. The euphorbia candelabra are troublesome owing to their poisonous sap, which injures the eyes of the porters, who have, therefore, been supplied with goggles. When the clearing is complete the surrounding lands will be opened up to cattle and also the great plains of the south which communicate with the River Kagera.

"The third area—the Lugeye valley of about 4,000 acres—is most interesting, for it is here that the experiment can be seen most clearly. The bush and breeding places of the fly have been destroyed and its dissemination towards the lakes has been stopped. A few hilltops have been cleared northwards where some breeding places have been found, and if the work is successful it will free the Masha and plains south of Mbarara. The valley is hemmed in on both sides by high hills, which form an almost certain barrier against the fly.

"Trained boys are always out catching the flies and digging up pupæ and empty pupa cases. Records are carefully kept of the location and numbers of flies and pupa obtained and also of the weather, in an endeavour to discover the effects of clearing and destruction. The whole work is under the direction of Mr. W. F. Poulton, Director of Veterinary Services, with Mr. R. J. Simmons in immediate charge. Mr. J. T. Kennedy, Senior Assistant Live Stock Officer, is in charge of the work on the Lugeye valley and Mr. G. P. Lunn is supervising the clearing at Ntundu.

In Parliament.

Slaughter of Animals Bill.

In the House of Commons recently, Mr. D. G. Somerville asked the Prime Minister whether the Government proposes to proceed with the Slaughter of Animals Bill?

The Prime Minister: As has already been announced by the Government, it will not be possible in present circumstances to give facilities for Private Members' Bills.

Mr. Lawther: Does the Prime Minister not think the Slaughter of Animals Bill, or the matter contained therein, would be more human than the inhuman methods adopted with the unemployed?

Foot-and-mouth Disease in Staffordshire.

The Ministry of Agriculture state that the existence of foot-and-mouth disease was confirmed by the Ministry at Rushall Hall Farm, Walsall, Staffordshire, on Wednesday. The movement of animals was prohibited in an area of about 15 miles radius around the infected premises.

Pig Recording.

A good deal has been heard lately about the possibilities of developing in this country a general system for assessing the performance of breeding stock on the lines which have proved so useful in Denmark and Sweden. The secretary of the National Pig Breeders' Association points out that the early herd books in the eighties recorded litters as well as pedigrees, but for reasons that are not clear the practice was discontinued after a few years. Then, about 20 years ago, there was the introduction of compulsory earmarking of individual pigs by tattooing and the recording of births within a short time of farrowing. From this beginning was created the association's present system of registration, which covers the Berkshire, Large White, Middle White, Tamworth, and Wessex Saddleback breeds of pig. Breeders now co-operate automatically in recording prolificacy of families and strains with pedigree in the herd book. For this scheme it is claimed that breeders have been enabled to discover and eliminate unprolific sows and that the average of pigs reared shows a steady improvement in recent years.—*The Times.*

Irish Free State Veterinary Surgeons' Act, 1931.

Prohibition of Practice by Unqualified Persons.

The Veterinary Surgeons' Act, 1931, of the Irish Free State, which was passed this Session, contains the following clauses relating to the prohibition of practice by unqualified persons:—

44.—(1) Every person who is registered in the register shall be entitled to take and use the description of veterinary surgeon and such description shall, for the purposes of this Act, be deemed to imply that the person using the same is so registered.

(2) A person who is registered in the register shall not

(*a*) use any name other than the name in which he is registered in the register; or

(*b*) take or use, or affix to or use in connection with his premises, any title or description relating to himself, his premises or the work done or proposed to be done by him which is calculated to suggest that he possesses any professional status or qualification other than a professional qualification or status which he in fact possesses and which is indicated by the particulars relating to him entered in the register.

(3) Every person who does any act which is a contravention of this section shall be guilty of an offence under this section and shall be liable on summary conviction thereof to a fine not exceeding fifty pounds.

45.—No person shall be entitled to recover in any legal proceedings any fee or charge for or on account of any veterinary surgical or veterinary medical advice or attendance given by him or any veterinary surgical operation performed by him unless such person was a registered veterinary surgeon when (as the case may be) such advice or attendance was given or such operation was performed.

46.—(1) It shall not be lawful for any person to practise or to represent or hold himself out, whether directly or by implication, as practising or being prepared to practise veterinary surgery or veterinary medicine unless he is for the time being a registered veterinary surgeon.

(2) Every person who acts in contravention of this section shall be guilty of an offence under this section and shall be liable in respect of each such offence on summary conviction thereof to a fine not exceeding one hundred pounds.

(3) Nothing in this section shall render it unlawful for any farmer or other person who habitually keeps animals for profit or the servant of any such person to perform on or administer to an animal of any class (whether owned or not owned by such person) any operation or medicine the performing or administering of which is incidental to the usual care and management of animals of that class, provided that such person or servant does not hold himself out as a registered veterinary surgeon.

47.—(1) It shall not be lawful for any body corporate to practise or to represent or hold itself out, whether directly or by implication, as practising or being prepared to practise veterinary surgery or veterinary medicine.

(2) If a body corporate practises or represents or holds itself out, whether directly or by implication, as practising or being prepared to practise veterinary surgery or veterinary medicine, such body corporate shall be guilty of an offence under this section and shall be liable on summary conviction thereof to a fine in respect of each such offence not exceeding one hundred pounds and not less than fifty pounds, and the manager and every director of such body corporate shall also be guilty of an offence under this section and shall be liable on summary conviction thereof to a fine in respect of each such offence not exceeding one hundred pounds and not less than fifty pounds.

Light Horse Breeding.

Withdrawal of Thoroughbred Premium Stallion Grant.

At a largely attended meeting of the Council of the Hunters' Improvement and National Light Horse Breeding Society held at 12 Hanover Square, London, W.1, it was announced that a letter had been received from the War Office, intimating that no further grant would be available for the subsidising of thoroughbred premium stallions, and that, therefore, the War Office were unable to hold a show of thoroughbred stallions at the Royal Agricultural Hall in March next, in conjunction with the Hunters' Improvement and National Light Horse Breeding Society.

The Council consider this decision of extreme importance, realising as they do what a serious effect it will have, not only on the owners of premium stallions, but also on agriculturists generally.

After considerable discussion it was unanimously decided to request the Treasury to receive a deputation with a view, if possible, of obtaining a modified grant.

. . . . .

"Future of the Horse."

"Blow to Horse Breeding."

In this connection, and under the above headings, *The Morning Post* of September 19th published the following letter, from the pen of Major-General Sir John Moore, K.C.M.G., C.B., F.R.C.V.S.:—

To the Editor of The Morning Post.

Sir,—The announcement that the Army Council has decided to abandon the Light Horse Breeding Scheme, and the consequent cessation of King's Premiums and other awards after the season of 1931, will be received with deep regret by all who are concerned in the breeding of light horses for the Army, for commercial services, and in the breeding generally of the best types of hunters and light horses for which this country has always been famous.

In these times of stringent economy and drastic cuts in national expenditure it would seem unavoidable that so big a block grant as £30,000 should continue to be held against the Army Vote, but surely other ways and means could be found whereby the good work of a national industry, economic to the producer, may be carried on.

In its passing one feels that a deep measure of gratitude and thanks should be accorded to the Remount Department of the War Office for the able and businesslike manner in which the scheme has been carried out since 1924, when it was taken over by that Department from the Ministry of Agriculture.

But the question arises, "Is any horse-breeding scheme essentially the business of an Army?"

Is such not rather the duty and function of the State, and more in keeping with the responsibility of the Ministry of Agriculture? I, for one, consider that it should never have been transferred to Army Account, and it is to be hoped that the Ministry of Agriculture will again take it up and administer it under new methods.

The demand of this country in commercial horses is such that the active type of horse to go either in single harness or in pair is most desirable, in order that pace may be kept up with faster-moving mechanical traffic. It is noticeable, too, in the Army that the smaller, stouter, and well-built types of horses for artillery teams and infantry transport are preferred, wherein is great economy in feeding, with equal efficiency to the Army as a whole.

I would appeal to the Ministry of Agriculture not to let the Spring Show of the Hunters' Improvement and National Light Horse Breeding Society, with the King's Challenge Cup and other challenge trophies, go to the wall. I feel sure that some modification of grants and awards could be devised to the advantage of an essential industry.

In France, for instance, a proportion of the 11 per cent. pari-mutuel deductions is devoted to horse-breeding. In Italy, too, part of the prize money of races derived from taxation of bookmakers and pari-mutuels, goes to the breeder of the animal.

In my opinion, the whole situation could be met and spread over satisfactorily if permission was granted by the State to hold "sweeps" on classic races in this country, for without the central figure of the horse there never would be any "sweeps" in any country.

John Moore.

16 Frognal Lane, N.W.3.

Army Pay Revision.

A change of considerable importance to Army officers will be made in the procedure for altering the pay rates according to the index figure of the cost of living. In future the rates will be revised half-yearly instead of once every third year. The pay alterations will be made on October 1st and April 1st each year, and the cost of living deduction with its variation upward or downward will be based on the average index figure of living costs for the periods September to February and March to August.

Immediate effect will thus be given to changes in the figure by having six revisions instead of one over the period of three years. Normally the revision has been made every third year, but as a special measure the 1930 revision was for one year and that of last July for two years, leaving the next normal date as July 1st, 1933. By the new Order altering this, the deduction of three per cent. (an increase in the current deduction of 8 to 11 per cent.), which takes effect on October 1st next, will be followed by a revision on April 1st next on the average index figure of living costs from September 1st, 1931, to February 29th, 1932. The deductions are made from a standard rate of pay fixed in 1919. This standard rate has become a paper scale for calculating the proportion of the 20 per cent. maximum deduction permitted on the variation in the cost of living, and does not represent anything actual. The new operative standard rate is the 1925 scale, which brings all ranks on to a new common basis on October 1st, but the 1919 standard remains in use for deduction purposes.

Foxhunting.

In the course of a survey of the present position of fox-hunting, a correspondent writes to *The Times*:—

"There is little need to point out that 13 seasons have sufficed to restore fox-hunting establishments to their full strength, after the desperate economies necessitated by the War. Thanks in part to the research work effected by the *Field* Distemper Fund, good foxhounds are now to be had practically for the asking. In general horses are cheaper, though the perfect hunter is still both rare and costly. Feeding stuffs have reached ridiculously low prices, but wages, which are a very large item in the foxhunters' budget, are still as high as ever. Nor is there much prospect of cutting down the expenses of running a fox-hunting country, for poultry are increasingly popular as a source of livelihood among farmers—and no less popular among foxes—and the use of wire fencing is now, alas! almost universal. These are, indeed, two problems which call for the utmost delicacy of treatment. The depression which has settled upon agriculture, heavy taxation, the breaking up of the large estates, and the slippery surface of the modern main roads are other malevolent influences. But it is only fair to emphasise that the control of fox-hunting will very soon be in the hands of those who have never known a grass country free from the continual menace of wire, who have never presumed upon the respect of a tenant for the pursuits of his landlord, who, in fact, have no empty regrets for the more leisurely days of the past, but probably appreciate their sport all the more by reason of the fact that they have to work hard at their respective professions on the all too numerous non-hunting days.

Notes and News.

The Editor will be glad to receive items of professional interest for inclusion in these columns.

Diary of Events.

Sept. 28th.—N.V.M.A. Committee Meetings, 2 Verulam Buildings, Gray's Inn: Editorial, 4.30 p.m.

Sept. 30th.—Meeting of the West of Scotland Division, N.V.M.A., at Glasgow.

Oct. 1st.—Meeting of the Central Division, N.V.M.A., at 10 Red Lion Square, W.C.1.

Oct. 5th.—N.V.M.A. Committee Meetings at 2 Verulam Buildings, Gray's Inn, W.C.1.

Oct. 6th.—N.V.M.A. Committee Meetings at 2 Verulam Buildings, Gray's Inn. N.V.M.A. Council Meeting at 10 Red Lion Square, W.C.1.

Oct. 7th.—R.C.V.S. Committee Meetings.

Oct. 8th.—R.C.V.S. Committee Meetings.

Oct. 9th.—R.C.V.S. Committee and Council Meetings.

Norwich Congress Number.

Members requiring additional copies of this issue are requested to make application at once to the Editorial Representative, N.V.M.A., 2 Verulam Buildings, Gray's Inn, W.C.1, enclosing remittance at the rate of one shilling a copy, post free.

Congress Group Photograph.

Members are informed that they can obtain copies of the Congress Group Photograph, reproduced in the last issue, upon application (enclosing 5s. remittance) to The London Panoramic Co., 10 Farringdon Avenue, E.C.4.

N.V.M.A. Clinical Prize Scheme for Students.

Students who are eligible to participate in the above scheme are reminded that their notes must be in the hands of the General Secretary, N.V.M.A., 2 Verulam Buildings, Gray's Inn, W.C.1, by Monday, October 5th, 1931.

Personal.

Decoration.—By Canadian Army Veterinary Services Corps Order No. 204 (G. O. No. 83 of June 15th, 1931) Major T. R. R. Hoggan, M.R.C.V.S., Vancouver, B.C., Canada, has been awarded the Colonial Auxiliary Forces Officers' Decoration (V.D.).

. . . . .

National Gallery Gift.—The Times announces that in Room XXVIII of the National Gallery a painting of "Judith and Holofernes," recently given by Mr. J. W. Dollar, M.R.C.V.S., F.R.S. (Ed.), has now been hung temporarily as a new acquisition. Paintings of the same style and period already in the possession of the Gallery,

by Annibale and Lodovico Carracci, Guido Reni, Mattia Preti, and others, are also temporarily on exhibition.

"The painter of the 'Judith and Holofernes,' Jan Lys or Liss, like the two famous French painters, Claude and Nicolas Poussin, not Italian by race, spent most of his life in Italy and received the greater part of his training there. During his lifetime he had, like Gerard Honthorst, great fame, both in Italy and in Holland, though it is doubtful whether by race he was Dutch or Northern German. The subject, gruesome though it is, appears to have attracted Lys, as he has painted it three times. The other two replicas are in the Budapest and Vienna galleries respectively."

The Sterilisation of Cocaine Solutions.

During the technical sterilisation of local anæsthetic solutions containing cocaine, water, ethyl alcohol, and phenylurethane are lost, and the residual solution becomes richer in cocaine and sodium chloride. Experiments with a 1 per cent. aqueous solution of pure cocaine hydrochloride showed that no appreciable decomposition of the alkaloid took place during fifteen minutes' sterilisation at 125° C., but by more prolonged heating at this temperature, or by sterilisation at a higher temperature, partial decomposition resulted with the production of benzyl alcohol. In one experiment 30 per cent. of the cocaine was decomposed during sterilisation for thirty minutes at 150° C.—W. Hok (*Dansk Tidsskr. Farm.*, 1931, 5, 37, through *B.C.A.-B.*, 1931, 696. Ex. *Pharm. Journ.*)

Correspondence.

Letters to the Editor should reach the Office not later than by the first post on Tuesday morning for insertion in following Saturday's issue.

All correspondence must bear the name and address of the contributor for publication.

The Editor does not hold himself responsible for the opinions of his correspondents.

"Buy British."

To the Editor of The Veterinary Record.

Sir,—The present industrial and financial crisis provides an excellent opportunity to the veterinary practitioner to assist in tiding over a bad time and in preparing against a rise in prices which may, at any rate temporarily, follow the adoption of a protective tariff against imports by increasing the production of British drugs, sera and instruments, by the perfectly simple expedient of buying the native production whenever possible.

Although the practitioner is overwhelmed by pamphlets and advertisements relating to Continental and Transatlantic fine drugs, sera, vaccines and instruments it does not follow that their production is entirely in foreign hands. Yet through the pertinacity with which foreign products are advertised in this country there is a danger that these goods will, as before the War, rapidly establish a practical monopoly, if indeed they have not already done so!

On the outbreak of war, in common with many other practitioners, I found myself deprived of many of the "fine drugs" of foreign manufacture upon which I had come to rely for almost daily use. Searching for substitutes I found that a very large percentage of these "foreign goods" were manufactured in this country and in several instances were originally British productions until the cut in prices by foreign competitors drove the British manufacturers out of the market. Since that time British manufacturing chemists have once again shewn they can produce anything that anybody else can. *But they do not advertise*! Their travellers call upon practitioners once a month, generally when the practitioner is busy and only able to take a hurried glance around his dispensary to ascertain immediate requirements and not to debate with them the respective values and costs of the travellers' or their foreign competitors' commodities. Meanwhile, he receives most attractive pamphlets describing the virtues of nicely dispensed drugs with names suggestive of magical properties and the foreign manufacturer gets his order.

Nor is this by any means all. My own experience leads me to the conclusion that many foreign goods must carry a heavier profit than the home-made article, as on two occasions I have ordered goods on the supposition that I was "buying British," only to find on delivery they were of foreign make.

On one recent occasion I ordered amongst other goods an intradermal injection syringe which broke in two the first time I sterilised it. On returning it to the firm I was charged 3s. 6d. for repairs and on asking for a better syringe I was told I could have an English one for 4s. additional cost. I took the English syringe, paid my 7s. 6d., and obtained an article worth more than double the one of foreign make. The same traveller sold me some cotton-wool which on arrival proved to be marked "Foreign manufacture." Having been bred and born in Lancashire I happen to know something about cotton and recognised this as the cheap long-carded wool, which is more like hair than wool, practically non-absorbent and almost useless for surgical purposes.

If distributors play tricks like this they cannot expect our patronage, but if they have the enterprise to advertise and offer good articles of British manufacture I feel quite certain that my professional brethren will do all in their power to assist them to sell these goods at a profit.

Sincerely yours,

David Eric Wilkinson.

Oakwood,
Chigwell, Essex.

September 19th, 1931.

Veterinary Services of the Repatriation Department in South Africa.

To the Editor of The Veterinary Record.

Sir,—I have read with pleasure the interesting article which appeared in your issue of September 27th, 1930, compiled by Dr. H. H. Curson, of Onderstepoort Laboratory, Pretoria, Transvaal.

I certainly consider that the profession in South Africa is under a debt of gratitude to Dr. Curson for the energy and enthusiasm he has shewn in attempting to carry out the thankless task of "historian" in this connection.

It is up to those of us who were employed with the Repatriation Department to assist in recording the facts, as we know them, or as they affect us, in order to correct and complete the history of the veterinary services rendered to the Repatriation Department in South Africa. Solely with that aim in view, I herewith relate my personal experiences.

I left the Army Veterinary Service on November 21st, 1902, and joined the Repatriation Department of the Transvaal, on November 22nd, 1902.

At that date I was stationed at Aliwal, North Cape Province, with the 21st Company Army Service Corps. I received instructions to proceed to Brandfort, O.F.S., in order to deal with a reported outbreak of glanders amongst equines, which I confirmed and dealt with, shooting clinical cases, mallein testing all contacts and destroying reactors.

I then proceeded to Heidelberg, Transvaal, where I assumed the position of Veterinary Officer in Charge of the South-Eastern Transvaal. This latter area included Repatriation Depôts at Heidelberg, Standerton, Vereeniging, Volksrust, Charlestown and Wakkerstroom. These depôts were visited regularly and periodically to deal with outbreaks of contagious diseases amongst stock and all equines (horses, mules, donkeys) were subjected to the mallein test prior to issue to farmers. Amongst cattle, several outbreaks of contagious disease (such as anthrax and pleuro-pneumonia) were dealt with. Besides these duties animals were examined prior to and passed for purchase—for eventual issue to farmers. A general

supervision and inspection of all depôts was carried out and attention paid to shoeing and dietetics.

Unfortunately, there was no Chief or Principal Veterinary Officer at the Headquarters, Pretoria, whose offices were situated in the old Raadsaal Buildings. The late Mr. A. C. MacDonald was Director of Agriculture and Stock, and Mr. Hughes was Secretary to the Department. Both of these officials dealt with all matters (including veterinary) pertaining to stock.

Very frequently the late Mr. T. H. Dale, M.R.C.V.S., and I were sent to the O.F.S. and Cape to deal with stock matters. The first-mentioned veterinarian (Mr. Dale) rendered valuable service in the Repatriation Department, and was mainly stationed at Pretoria for special duty—which he carried out with great credit to the profession.

Yours faithfully,
JAMES CHALMERS, M.R.C.V.S.

P.O. Box 877,
Johannesburg.
August 26th, 1931.

"Advertise the Horse."

To the Editor of The Veterinary Record.

Sir,—It was with great pleasure that I read the letter of Mr. C. Wentworth Elam in the *Veterinary Record* of September 19th, strongly urging a liberal support to the National Horse Association by all members of the Veterinary Profession. As the representative of the Central Veterinary Society on the Council of the National Horse Association, I can vouch for the good work that is being done in all parts of the country for the benefit of horse owners and farmers and incidentally of benefit to the Profession as a whole.

If our members have carefully read the various reports that have appeared in the *Veterinary Record* during the last year, they ought, I think, to become willing subscribers to the funds of the National Horse Association; particularly would I refer them to the issues of March 28th, page 348, and May 2nd, page 503.

The bulk of the work that has been carried out has been of a voluntary character—of a necessity money must be expended, and if more were available for advertising purposes (as suggested by Mr. Wentworth Elam) much good work could be done for livestock generally.

The suggestion put forward that each member should contribute the sum of 5s. each year is a very laudable one, and if it were carried out and the funds handed to the Council of the Horse Society; no society would be more grateful for help, and it would be a proof of the interest shown by the Veterinary Profession. At the present moment I think we are sadly lacking. Of all the veterinary societies there are now only 10 in membership (one less than 1930), and the contribution from such is so small that it probably works out much less than 1s. per annum per member of each society. Surely our veterinary societies can be more liberal? The cry of so many is, "We can't afford it": yet it is so urgently needed, and much to our advantage to stimulate activities all bearing upon the welfare of animals. I appeal to every member to make some effort either through their society, or by becoming a direct subscriber of 10s. 6d. per annum.

I venture to point out that few persons realise how much is due to the Slippery Roads Committee for the great improvement of the roads in the country, not only for the benefit of horse traffic, but also to the advantage of motors.

More money is now being required by the Parliamentary Committee which is now in operation, to watch all Private Bills that may have some bearing upon livestock generally.

I make this appeal to Veterinary Surgeons with the hope that a reasonable response will follow, and thus show that the Profession is alive to all progress that affects the animal population of England.

Yours faithfully,
WALTER PERRYMAN.

"Chelston,"
Wickham Road,
Shirley,
Near Croydon.
September 21st, 1931.

Diseases of Animals Acts, 1894 to 1927.

SUMMARY OF RETURNS.

Period.	Anthrax.		Foot-and-Mouth Disease.		Parasitic Mange.§		Sheep Scab.	Swine Fever.	
	Outbreaks confirmed.	Animals attacked.	Outbreaks confirmed.	Animals slaughtered as diseased or exposed to infection.	Outbreaks reported by the Local Authorities.	Animals attacked.	Outbreaks confirmed.	Outbreaks confirmed.	Swine slaughtered.
	No.	No.	No.	No.	No.	No.	No.	No.	No.
Period 1 to 15 September, 1931	15	17	4	391	7	36	7	70	30
Corresponding period in—									
1930 ...	17	20	5	159	4	7	7	73	35
1929 ...	16	20	3	744	1	2	1	93	42
1928 ...	23	24	—	—	3	4	14	38	24
Total 1 Jan. to 15 Sept., 1931	354	397	94	9,915	113	208	215	1,380	572
Corresponding period in—									
1930 ...	273	301	5	159	171	260	290	1,775	754
1929 ...	322	404	26	2,639	163	329	373	1,625	961
1928 ...	400	459	107	8,929	230	442	351	1,142	590

NOTE.—The figures for the current year are approximate only.